

Before the
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In re

DISTRIBUTION OF SATELLITE
ROYALTY FUNDS

)
)
) CONSOLIDATED PROCEEDING
) NO. 14-CRB-0011-SD (2010-13)
)
)
)

WRITTEN DIRECT STATEMENT
OF THE SETTLING DEVOTIONAL CLAIMANTS

VOLUME I

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In re)
DISTRIBUTION OF SATELLITE) CONSOLIDATED PROCEEDING
ROYALTY FUNDS) NO. 14-CRB-0011-SD (2010-13)

**WRITTEN DIRECT STATEMENT
OF THE SETTLING DEVOTIONAL CLAIMANTS**

Pursuant to 17 U.S.C. § 803(b)(6), Section 351.4 of the rules of the Copyright Royalty Judges (“Judges”), 37 C.F.R. § 351.4, and the Judges’ November 2, 2018 *Order Adopting Satellite Allocation Phase Procedural Schedule*, the Settling Devotional Claimants (“SDC”) submit the attached testimony in connection with the above-referenced proceeding to allocate shares of the 2010-2013 satellite royalty funds (“2010-2013 Satellite Funds”) among the four parties participating in this proceeding. The purpose of this memorandum is to summarize the written testimony of the SDC, to designate prior testimony, and to state the SDC’s claim for the Devotional claimant category.

I. SUMMARY OF TESTIMONY

A. Testimony of Dr. William J. Brown

Dr. William J. Brown is a Professor and Research Fellow at the School of Communication and the Arts at Regent University in Virginia Beach, Virginia, and a former Dean of the School. He is also a partner in Brown Fraser & Associates, a consulting firm in Chesapeake, Virginia. Dr. Brown has studied the content and viewership of many different kinds of religious television programs, and over the past 25 years has conducted more than 300 studies on religious television

viewing in more than 40 nations. Dr. Brown will discuss his extensive research regarding the evolution of devotional programming, as well as methodologies used to study and value television programming (particularly quantitative, qualitative and historical-critical approaches). He will also address the factors for assessing the relative marketplace value of Devotional claimants' programming and identify the most appropriate measure for allocating the 2010-2013 Satellite Funds among the four claimant categories.

B. Testimony of John Sanders

John Sanders is a principal in Bond & Pecaro, Inc., a Washington, D.C.-based firm that specializes in the appraisal of communications and media assets. Mr. Sanders has actively participated in the appraisal of more than 3,000 communications and media businesses. Much of his work has focused on the television and cable industries and the appraisal of intangible assets, such as syndicated and feature film television programming, customer and subscriber-based assets, advertiser relationships, and customer lists. Mr. Sanders will discuss the value of Devotional programming in the context of allocation of the 2010-2013 Satellite Funds and offer his professional opinions regarding the appropriate methodology for awarding the 2010-2013 Satellite Funds and the shares that should be accorded the Devotional claimant category for each of the years in contest.

C. Testimony of Toby Berlin

Toby Berlin is the President and Founder of the School of Toby, Inc., a media consulting business. At School of Toby, Ms. Berlin provides consulting expertise in the cable, satellite, and over-the-top industries. Since 2014, Ms. Berlin has served as a special consultant to Sony Interactive Entertainment to assist its development of an Internet multichannel video distribution platform. Prior to founding School of Toby in 2013, Ms. Berlin was an executive at DIRECTV

and served as Vice President of Programming Acquisitions and, among other responsibilities, managed DIRECTV's sourcing and negotiations for programming acquisitions across numerous program categories. Ms. Berlin will offer her professional opinions regarding the MVPD industry (including the nature of competition between cable systems and satellite carriers), the value satellite carriers placed on categories of programming relevant to the 2010-2013 period, and factors to consider in the allocation of shares in this proceeding.

D. Testimony of Erkan Erdem, Ph.D.

Dr. Erdem is a Managing Director at KPMG LLP in the Economic and Valuation Services ("EVS") practice and teaches graduate-level econometrics at the University of Maryland as an adjunct professor in the Masters in Applied Economics program. He received a Bachelor of Science in Mathematics and Bachelor of Arts in Economics from Koç University in Istanbul, Turkey, and subsequently earned a Ph.D. in Economics from The Pennsylvania State University. Prior to joining KPMG, he worked as an antitrust economist for the economic consulting firm Bates White, LLC and as an economist for IMPAQ International, a research and consulting firm. Dr. Erdem has an impressive background providing expert analyses on economic and statistical matters. Dr. Erdem will provide analyses demonstrating the most appropriate methodology for measuring the relative market value of a program and allocating 2010-2013 Satellite Funds between the four claimant categories at issue in this proceeding.

E. Testimony of Professor Daniel L. Rubinfeld

Professor Rubinfeld is the Robert L. Bridges Professor of Law and Professor of Economics Emeritus at the University of California, Berkeley and Professor of Law at New York University. He received an A.B. degree in mathematics from Princeton and a Ph.D. from MIT in economics. Professor Rubinfeld previously taught at the University of Michigan in the economics department,

the Public Policy School, and the law school, and served from June 1997 through December 1998 as chief economist and Deputy Assistant Attorney General for Antitrust in the U.S. Department of Justice. In addition to authoring a variety of articles relating to antitrust and competition policy, law and economics, public economics, and quantitative methods, as well as two textbooks (*Microeconomics* and *Econometric Models and Economic Forecasts*), Professor Rubinfeld has consulted for private parties and public agencies, including the Federal Trade Commission, the Antitrust Division of the Department of Justice, and various State Attorneys General. Professor Rubinfeld will provide an in-depth evaluation of the pros and cons of using regression methods generally and will examine the implications of his analysis with respect to the allocation of satellite royalty funds to Devotional claimants relative to other programming categories.

II. DESIGNATED TESTIMONY

The SDC designate the 2010-2013 Cable Royalty Fund allocation proceeding testimony (Docket No. 14-CRB-0010-CD (2010-13)) of the following witnesses. Copies of each witness's prior written and oral testimony are attached hereto as **Volumes II, III, and IV**.

Volume II:

- A. Gregory S. Crawford, Ph.D.
- B. Howard Horowitz

Volume III:

- C. Joel Steckel, Ph.D.
- D. James M. Trautman

Volume IV:

- E. Daniel M. Hartman
- F. Allan Singer
- G. Nancy A. Mathiowetz, Ph.D.

III. SDC'S CLAIM FOR THE DEVOTIONAL CLAIMANT CATEGORY

Based on the testimony of their witnesses, the results of the Horowitz study and the Bortz study submitted in connection with the 2010-2013 Cable Royalty Fund allocation proceeding, the Judges Final Determination issued in the 2010-2013 Cable Royalty Fund allocation proceeding,

and other testimony they anticipate will be presented in this case, the SDC are seeking the following percentage shares of the 2010-2013 Satellite Royalty Funds:

2010	2011	2012	2013
4.42%	7.90%	7.65%	5.40%

Pursuant to 37 C.F.R. § 351.4(b)(3), the SDC reserve the right to amend the requested award based on evidence in this proceeding.

Date: March 22, 2019

Respectfully submitted,

SETTLING DEVOTIONAL CLAIMANTS

/s/ Matthew J. MacLean

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CERTIFICATE OF SERVICE

I, Matthew J. MacLean, hereby certify that on March 22, 2019, a copy of this Written Direct Statement of the Settling Devotional Claimants was electronically filed in eCRB and served on the following participants:

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/s/ Matthew J. MacLean

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) CONSOLIDATED PROCEEDING
) NO. 14-CRB-0011-SD (2010-13)
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**DECLARATION OF JESSICA T. NYMAN IDENTIFYING
RESTRICTED MATERIALS IN THE WRITTEN DIRECT
STATEMENT OF THE SETTLING DEVOTIONAL CLAIMANTS**

I, Jessica T. Nyman, declare as follows:

1. I am over the age of 18 and am an associate at the law firm Pillsbury Winthrop Shaw Pittman LLP. I submit this declaration listing all Restricted materials in the Settling Devotional Claimants' Written Direct Statement in the above-referenced proceeding along with the basis for the Restricted designation.
2. The redaction log attached hereto identifies every item designated as Restricted. These items were designated as "Restricted" pursuant to the Judges' March 31, 2016 Protective Order or identified in the hearing transcript as "Confidential" (or subsequently designated as confidential).
3. Items designated as "Restricted" have been redacted from the "Public Version" of the SDC's Written Direct Statement and have been highlighted in the "Restricted Version" of the SDC's Written Direct Statement.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on March 22, 2019.

/s/ Jessica T. Nyman

Jessica T. Nyman

Settling Devotional Claimants' Redaction Log

In re Distribution of Satellite Royalty Funds,
Consolidated Proceeding Docket No. 14-CRB-0011-SD (2010-13)

Description of Redacted Information	Page Number(s)
Designated Prior Testimony: Oral Testimony of Howard Horowitz, Docket No. 14-CRB-0010-CD (2010-13) (Sept. 15, 2017), Tr. 4228:2-4244:2 and 4262:2-4266:9	Vol. II pp. 726-741, 760-764
Designated Prior Testimony: Written Rebuttal Testimony of James M. Trautman, Docket No. 14-CRB-0010-CD (2010-13) (Sept. 15, 2017), pp. A-2, B-2 - B-4, C-2 - C-5	Vol. III pp. 404, 412-414, 416-419
Designated Prior Testimony: Oral Testimony of James M. Trautman, Docket No. 14-CRB-0010-CD (2010-13) (Feb. 15, 2018 – Feb. 20, 2018), Tr. 357:2-373:18, 442:2-454:8, 568:2-598:11, and 622:2-634:24	Vol. III pp. 549-565, 634-646, 755-785, 809-821
Designated Prior Testimony: Oral Testimony of Daniel M. Hartman, Docket No. 14-CRB-0010-CD (2010-13) (Mar. 12 – Mar. 13, 2018), Tr. 3204:9-24 and 3245:24-3247:18	Vol. IV pp. 104, 145-147
Designated Prior Testimony: Oral Testimony of Allan Singer, Docket No. 14-CRB-0010-CD (2010-13) (Feb. 22, 2018), Tr. 1086:2-1106:16	Vol. IV pp. 288-308

Before the
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<i>In re</i>)	
)	
Distribution of)	Consolidated Proceeding
Satellite Royalty Funds)	No. 14-CRB-0011-SD
-----		(2010-13)

Testimony of Dr. William J Brown

March 22, 2019

Testimony of Dr. William J. Brown

I. Introduction

A. *My Professional Background*

My name is Dr. William J. Brown. I am pleased to present this testimony in the 2010-2013 Satellite Television Royalty Distribution Proceeding in support of the Devotional Category Claimants. I have been retained by the Settling Devotional Claimants¹ (“SDC”) to present this testimony.

I am a Professor and Research Fellow at the School of Communication and the Arts at Regent University in Virginia Beach, Virginia, where I have been employed for the past 27 years in multiple administrative and faculty positions. I obtained my Doctor of Philosophy Degree in Communication in 1988 from the University of Southern California, my M.A. in Communication in 1987 from the University of Southern California, and my M.A. in Communication Management in 1986 from the Annenberg School for Communication, also at the University of Southern California. During the past 30 years, I have been widely published in academic journals and books on many subjects, particularly those dealing with media and social influence.

I am also a partner in Brown Fraser & Associates, a research and consulting firm based in Chesapeake, Virginia. During the past 25 years, I have conducted more than 300 studies on

¹ The Settling Devotional Claimants are comprised of the following entities: Amazing Facts, Inc., American Religious Town Hall Meeting, Inc., Catholic Communications Corporation, Christian Television Corporation, The Christian Broadcasting Network, Inc., Coral Ridge Ministries Media, Inc., Cottonwood Christian Center, Crenshaw Christian Center, Crystal Cathedral Ministries, Inc., Family Worship Center Church, Inc. (D/B/A Jimmy Swaggart Ministries), Free Chapel Worship Center, Inc., In Touch Ministries, Inc., It Is Written, Inc., John Hagee Ministries, Inc. (aka Global Evangelism Television), Joyce Meyer Ministries, Inc. (F/K/A Life In The Word, Inc.), Kerry Shook Ministries (aka Fellowship of the Woodlands), Lakewood Church (aka Joel Osteen Ministries), Living Word Christian Center, Living Church of God (International), Inc., Messianic Vision, Inc., New Psalmist Baptist Church, Philadelphia Church of God, Inc., RBC Ministries, Rhema Bible Church (aka Kenneth Hagin Ministries), Ron Phillips Ministries, St. Ann's Media, The Potter's House Of Dallas, Inc. (d/b/a T.D. Jakes Ministries), Word of God Fellowship, Inc., d/b/a Daystar Television Network, Billy Graham Evangelistic Association, and Zola Levitt Ministries.

religious television viewing in more than 40 nations. I have studied the content and viewership of many different kinds of religious television programs and am particularly qualified to testify about the viewership of religious television programs in the United States during the past 25 years. I have testified before the Copyright Royalty Board as an expert witness on several previous occasions. My professional Curriculum Vitae is attached as Exhibit 1.

B. Research Methodologies of Value in These Proceedings

As a university professor, one of my principal teaching responsibilities during the past 27 years has been to teach quantitative research, a required methodology course for all Ph.D. students in the School of Communication and the Arts at Regent University. My expertise in quantitative research methods, with specialization in survey research and regression analysis of quantitative data, is highly relevant to the task faced by the Copyright Royalty Judges (the “Judges”) in this proceeding. As I noted in my testimony in previous proceedings, three of the principal groups of research methodologies used by scholars to study television programming and its effects on television viewers are pertinent to these proceedings, as most television studies utilize quantitative or qualitative data, and sometimes use both kinds of data in a mixed-methods approach.² In addition, a growing number of television studies apply historical-critical methodologies such as critical discourse analysis to analyze television programming and their effects on audiences.

Thus far in these proceedings, the Judges have allowed participants to present quantitative data, qualitative data, and historical-critical data as supporting evidence for their arguments, although it is apparent that the Judges give substantially more weight to arguments

² Klaus Bruhn Jensen, *The Complementarity of Qualitative and Quantitative Methodologies*, in *A Handbook of Media and Communication Research: Qualitative and Quantitative Methodologies* 254-272 (Klaus Bruhn Jensen ed. 2002).

supported by quantitative research. Although I am not serving as an expert witness in these proceedings on regression analysis, I understand this methodology very well and have conducted more than 200 regression analysis studies. I also have been teaching regression analysis to Ph.D. students for the past 27 years and regularly review regression analysis studies as a scholarly reviewer for academic journals. As I have discussed in previous testimony, quantitative research has important limitations, can be fraught with errors, can be conducted with bias and deceptively manipulated, and may lead to wrong conclusions and bad judgment. I therefore strongly appreciate the Judges' willingness to consider many different types of evidence. For the purposes of my testimony in these proceedings, I will cite relevant academic research that is based on quantitative, qualitative and historical-critical methodologies.

C. My Testimony in the Copyright Royalty Proceedings

In connection with Phase I of the Distribution of the 2004 and 2005 Cable Royalty Funds, I testified on behalf of the Devotional Claimants regarding the growth of religious programming in the second half of the 20th Century and into the 21st Century. In connection with the Phase II Distribution of the 1998-1999 and 2000-2003 Cable Royalty Fund, I testified about how to assess the relative marketplace value of particular devotional television programs claimed by the SDC and IPG.

In my testimony for the 2010-2013 Cable Royalty Allocation Proceeding, I focused on two points. First, I presented factors that I believed would be useful for assessing the relative marketplace value of devotional television programming. Second, I recommended some useful methodologies that might be employed to measure the relative marketplace value of devotional television programming.

In the present proceedings, I will present similar recommendations, since the reasons that television viewers subscribe to satellite television services are the same reasons that they subscribe to cable television services. I have not found any data that demonstrate that the niche markets in satellite television programming are substantively different from the niche markets in cable television programming. To the contrary, the large majority of scholars treat cable and satellite services as interchangeable. Before presenting the heart of my testimony, which addresses the relative market value of devotional television programs, I will first note briefly some of the relevant changes in the television industry which took place just prior to and during the 2010-2013 time period, and what affect if any these changes have had on satellite television viewers of devotional programming.

II. Relevant Changes in the Television Industry

The television industry has been substantively changing during the past two decades. I will consider some of the important changes and how they have influenced the retransmission of television programming, including changes that influence television programming during the early 2000s.

A. Value Networks and Changing Business Models

Digital communication technology is substantially changing the architecture of the television broadcasting industry and its business models. The global diffusion of digital delivery and reception systems are transforming the production, distribution and consumption of media content.³ In the new media environment, value is no longer determined by the content creators and distributors. Instead, value is “co-created by a series of partnerships and relationships in a

³ Tom Evans, *Value Networks and Changing Business Models for the Digital Television Industry*, 7 Journal of Media Business Studies, issue 4, 2010, at 41.

value network, in which different stakeholders – suppliers, partners, allies, and even consumers – join forces, innovate, and co-produce value.⁴ New communication technology that is more interactive with television audiences has added a new level of complexity when determining what kinds of content viewers want and how much they are willing to pay for what they want.

Norman and Ramiraz note that media producers’ “key strategic task is the reconfiguration of roles and relationships” among these various stakeholders to “mobilize the creation of value in new forms.”⁵ When considering how royalties are paid to producers of retransmitted television programs, the increased complexity of the media environment suggests that acquiring and maintaining cable and satellite television subscribers by providing access to the programs they want has become increasingly more difficult given all the options they now have for programming. Although broadcasters may still conduct business as value chain companies, Tom Evens argues that innovative digital technology will “impact on the distribution and consumption of television content” as platform operators increasingly package channels in their platforms to provide “enhanced interactivity and enriched customer services.”⁶

One important implication of these changes in value networks and business models is that the strength of the niche market for devotional programming content can greatly enhance the revenue streams of devotional content providers as they expand the diversity of digital media products that they produce and distribute. Satellite and cable television companies are now competing with not only traditional broadcasting networks, but also with new internet-based providers of video content.

⁴ Ibid, at 43, 44.

⁵ Richard Norman and Rafael Ramirez, *From Value Chain to Value Constellation: Designing Interactive Strategy*. Harvard Business Review, July-Aug. 1993, at 66.

⁶ Tom Evans, *Value Networks and Changing Business Models for the Digital Television Industry*, at 48.

B. Migration from Broadcast Television Viewing to Cable and Satellite

A second important change resulting from innovative communication technology is the migration of television viewers from broadcast television to cable and satellite television, and from cable and satellite television to digital content providers via the Internet. Thus, the means by which media consumers' access video content created by television program producers has been changing. An increasing number of Americans are cutting their television cables. In 2013, Quartz reported that subscriptions to pay TV began to stall in 2009 as more Americans switched to online digital services.⁷ From 2001 to 2006, for example, there was a migration from broadcast television viewing, which decreased by 13 percent, to cable and satellite television viewing, which increased by 28 percent.⁸ During the past decade, more television viewers have been leaving both cable and satellite services in favor of increasing access to television programming content through internet companies like Netflix, Amazon Prime, and Hulu.⁹

Producers of devotional media content are responding to these changes by expanding their digital footprints. By 2015, all the major religious cable networks and more than 400 religious broadcasters were streaming their devotional content online.¹⁰ After the implementation of the Federal Communications Commission's order for over-the-air television stations to switch from analog to digital, although the number of locally owned religious stations decreased, the number of religious television networks increased from three dominant players, TBN, CBN, and

⁷ Ritchie King, *Americans are Starting to Cut the Cable TV Cord, and Here's What it Looks Like*. Quartz [online, August 14, 2013], available at <https://qz.com/115121/americans-are-starting-to-cut-the-cable-tv-cord-and-heres-what-it-looks-like/>

⁸ Phil Cooke. *The last TV evangelist: Why the next generation couldn't care less about religious media and why it matters*, at 151. Ventura, CA: Regal (2009).

⁹ John E. Crawford, *Cutting the cord—a marketing case: An examination of changing TV viewership*, 5 Atlantic Marketing Journal, issue 2 (summer) 2016, at 11.

¹⁰ Phillip E. Wagner, *And on the Eighth Day, God Created TBN: Evangelical Television in the Digital Age*, in *The Electronic Church in the Digital Age: Cultural Impacts of Evangelical Mass Media*, Volume 1, 53-76 (Mark Ward Sr. ed. 2015).

PTL, to more than a dozen networks, including the Church Channel, Cornerstone TV, Daystar, God TV, His Channel, the Inspiration Network, NRB Network, Seven Angels, TCT Network, The Word Network, and World Harvest Television.¹¹

These changes have mitigated the effects of television system migration for devotional television viewers. According to the FCC, the percentage of television households relying on over-the-air reception to watch local broadcast television stations has remained relatively steady, as the number of households that use over-the-air service increased slightly from 11.2 million households in 2013 to 11.4 million households in 2014.¹² The FCC reported that reliance on over-the-air service by all U.S. television households during this time period remained the same at 9.8 percent, as viewers of television content may be accessing programming through cable or satellite television subscription services and through the Internet.¹³ From 2010 to 2014, the total number of U.S. video service subscribers to cable, satellite, and telecommunication companies increased from 99.2 million to 99.6 million and satellite operators maintained about the same number of subscribers.¹⁴ Therefore, changes in television programming access via satellite television services has not substantively changed how viewers of devotional television programming have watched these programs through satellite services during the time period of these proceedings. What has changed has been the increased number of choices that devotional viewers now have to a greater variety of devotional television programming content through their subscriptions to satellite and cable television services.

¹¹ Ibid, at 56.

¹² U.S. Gov't Accountability Office, GAO-16-496, *Report to Congressional Committees, Statutory Copyright Licenses, Stakeholders' Views on a Phaseout of Licenses for Broadcast Programming* (2016, May). Available at <https://www.gao.gov/assets/680/676935.pdf>, at 15.

¹³ Ibid, at 15.

¹⁴ Ibid, at 15.

C. Effects of Satellite Entry on Cable Television Prices and Product Quality

A third relevant change in the television industry that has taken place just prior to and during the 2010-2013 time period is the expansion of direct broadcast satellite (DBS) services. DirecTV entered the television market in 1994 and EchoStar's Dish Network entered the market in 1997, creating increased competition during the 2000s that has influenced both the cost and quality of television programming content. By 2001, Direct Broadcast Satellite (DBS) companies like Dish Network and DirecTV accounted for "about two-thirds of all new subscriptions to multichannel video systems."¹⁵ Jeffrey Eisenach's study of the economics of retransmission consent shows that from 2000 to 2006, the number of national satellite-delivered programming networks increased from 281 to 565.¹⁶ His study shows that monetary compensation for broadcast signals is likely to increase the economic efficiency of the television industry and enhance consumer welfare as broadcasters and distributors reach efficiency-enhancing bargains. Retransmission consent and compensation benefits consumers by "enriching the quantity, diversity, and quality of available programming."¹⁷ An extensive quantitative study by Chu, published by Rand in 2010, shows that that "satellite entry resulted in overall consumer welfare gains" of increased product quality and greater value of services through competitive pricing for bundled subscriptions.¹⁸

Waterman and Han's 2010 study of the television industry's transition from broadcasting to multi-channel video providers (MVPDs) indicates that satellite and cable television operators

¹⁵ Austan Goolsbee and Amil Petrin, *The Consumer Gains from Direct Broadcast Satellites and the Competition with Cable TV*. Working Paper 8317 (2001): 1-41. Cambridge, MA: National Bureau of Economic Research. Available at <https://www.nber.org/papers/w8317.pdf>

¹⁶ Jeffrey A. Eisenach, *The Economics of Retransmission Consent*. (2009). Washington, DC: Empiris LLC. Available at https://www.nab.org/documents/newsRoom/pdfs/032009_Retrans_Study.pdf, p. 14.

¹⁷ Ibid, at 42.

¹⁸ Chenghuan Sean Chu, *The Effect of Satellite Entry on Cable Television Prices and Product Quality*, 41 RAND Journal of Economics, number 4, at 763.

have been able to take a much greater economic advantage of this change than broadcasters, to the advantage of consumers.¹⁹ They conclude that “overall, digital transition has enhanced economic viability of cable and DBS delivery,” resulting in a “much higher quality and variety of programming” available to consumers.²⁰

In tracking the transition of the television industry, Stipp reported that by 2000, more than three-fourths of U.S. households received cable or satellite service.²¹ He also confirmed that this transition benefits consumers, stating that “cable/satellite services raised the number of program choices available in the average home,” which increased from less than 10 to 60 in 2000 and to 120 in 2010.²² Stipp concluded that “as the result of the branding of many new networks, the major broadcast networks are no longer seen as “leaders” anymore by many viewers.”²³

Thomas Wilke believes that the expansion of satellite television is “among the most significant developments affecting religious broadcasting”²⁴ Wilke explains:

Satellite systems offer greater channel capacity and enable religious programming to reach areas where terrestrial television broadcasts cannot be received. Religious programming is currently carried on a wide range of government and privately owned satellites in geostationary orbit... On a global basis, American evangelical groups such as TBN operate the largest number of religious channels carried on satellite.²⁵

¹⁹ David Waterman and Sangyong Han, *Broadcasters vs MVPDs: Economic Effects of Digital Transition on Television Program Supply*, info 12, no. 4 (2010): 15-24. Available at file:///C:/Users/willbro/Downloads/SSRN-id2004026%20(1).pdf

²⁰ Ibid, at 15.

²¹ Horst Stipp, *The Branding of Television Networks: Lessons from Branding Strategies in the U.S. Market*, 14 International Journal on Media Management, issue 2, 2012, at 107-119.

²² Ibid, at 111.

²³ Ibid, at 116.

²⁴ Thomas A. Wikle, *Technology and the Changing Geography of Religious Media*, in *The Changing World Religion Map*, volume V 3758 (Stanley D. Brunn & Donna A. Gilbreath eds., 2015)

²⁵ Ibid, at 3758.

One implication of this increased channel capacity for providers of devotional television programs is that they now have more opportunities to distribute their devotional programs as television subscription services seek to expand the number of their subscribers. The increased competition brought into the television industry by DBS providers serves to benefit niche markets like devotional viewers in two ways. First, increased access to devotional programming provided by satellite television providers like DirecTV and Dish Network put pressure on cable television providers to provide more access to devotional television programming. Second, more competition creates more distribution opportunities for producers of devotional television content to distribute their programming. These market conditions worked to sustain the demand for and consumption of devotional television programming from 2010-2013.

In addition to market demands for more quality devotional programming, managers of Christian television stations have embraced new technology to improve program quality. A study by Jeremy Upchurch of Christian television station managers indicated they strategically embraced technological innovation, especially when new technology would grow their audiences.²⁶ The expanded reach of devotional television networks through new communication technology also has expanded the variety of devotional programming. Thomas' study of evangelical media notes that the emergence of 24-hour Christian broadcasting networks means that at any time of day or night, most cable and satellite television viewers have access to a variety of devotional programming, including sermons, talk shows, news segments, and fictional films and television dramas.²⁷

²⁶ Jeremy Eugene Upchurch, *Religious Television and New Technologies: Managing Change in the Broadcast Environment* (2006). Ph.D. diss., Dallas, TX: University of North Texas.

²⁷ Holly Michelle Thomas, *Preaching to the Converted: Making Responsible Evangelical Subjects through Media*. (2016). Ph.D. diss. Ottawa: Carleton University. Available at https://curve.carleton.ca/system/files/etd/2f4a34f7-69b5-4d06-8916-de0bb2342377/etd_pdf/21cd1f2f7c541e58d2d24288fcab683b/thomas-preachingtotheconvertedmakingresponsibleevangelical.pdf, p. 49.

D. The Primacy of Niche Markets

A fourth important change in the television industry since 2010 to date is the growing primacy of niche markets. In Lin, Waterman and Ji's 2010 regression analysis study of 78 basic cable television networks, they found that advertising rates had no significant relationship with audience ratings for television programs, indicating that "relatively small niche cable markets do not suffer from small audiences, per se."²⁸ This finding reinforces the belief by cable and satellite television operators that niche audiences like devotional television viewers are valuable because they expand the diversity and size of their subscription base. In Simmons study of the motivations and gratifications for selecting a niche television channel, she states that "the growth of direct broadcast satellite television distribution to the home as a viable competitor to cable and terrestrial broadcast has fostered the availability of special interest or niche channels," thus providing greater choice for all television viewers and giving devotional television audiences more access to religious television programs.²⁹ The expanded ability of DBS' to target niche audiences makes these audiences especially attractive to advertisers.³⁰ Since DBS operators, like their cable competitors, can sell advertising on many non-broadcast channels, it is increasingly important to attract and maintain certain niche audiences, like those avid followers of religious content, because the niche audience expands the overall advertising base of for other complementary channels.

²⁸ Haizhen Lin, David Waterman, and Sung Wook Ji, *Basic Cable Network Segmentation toward Minorities and other Niche Audiences in the US: An Empirical Study*. September 2013. Available at https://m.tau.ac.il/~spiegel/media-workshop/Cable%20TV%20segmentation-Ji,%20Lin,%20Waterman%209-20-13_1_.pdf, p. 13.

²⁹ Dena L. Simmons, *Motivations and Gratifications for Selecting a Niche Television Channel: BYU Television*. (2002). Provo, UT: Brigham Young University. Available at <https://scholarsarchive.byu.edu/etd/5110/>

³⁰ *Ibid*, at 3.

In her study of Christianity on television and advertising, Melissa Gould states that “the exchanges between Christianity and television reveal Christian content is no longer restricted to religious communication, Christian contexts, or Christian meanings” because Christian content is present “across television genres” to “portray, reflect, disseminate and challenge religious ideas and attitudes” of television viewers.³¹ Charlotte Howell’s study of religion and American television in the post-network era after the 9/11 terrorist attacks documents how “religion weaves through the industrial practices of prime-time American television, including programming, marketing, and content creation.”³² She shows a dramatic increase in religious representations in American television programming after 2003 and a marked increase in religious narratives in prime-time television dramas.³³ She also observed during the 2010s an “acceleration of the boom of religious representation and the premiers of shows that approached religious content in increasingly varied ways.”³⁴ Howell further explains that the “fractured and increasingly niched audience paradigm of the post-network television industry coincides with the rise of new distribution outlets and their shifting models of acquiring and producing television.”³⁵

Howell explains the important growth of niche audiences in the television industry in the 21st century as follows:

In the post-network era, the mass audience has largely yielded to a variety of niches, affecting all aspects of the television industry and creative production from story development to reception. We can consider this process of industrial transformation to be a defining paradigm of twenty-first century media and a key element to understanding

³¹ Melissa L. Gould, *Christianity Sells and the Advertiser’s Toolbox*. Doctoral Thesis. Auckland, New Zealand: Auckland University of Technology, 2017, p. 46.

³² Charlotte Elizabeth Howell, *Divine Programming: Religion and Prime-time American Television Production in the Post-network Era*. PhD diss., 2016. Austin, TX: The University of Texas, p. viii.

³³ Ibid, at 14.

³⁴ Ibid, at 18.

³⁵ Ibid, at 21.

how and why religious content began appearing with greater frequency in mainstream television during the 2000s and 2010s. At this time, the risk of incorporating religious representation (at least when ideologically contained, in ways to be addressed throughout), began diminishing, due in large part to the more precise and narrow targeting of upscale niche audiences in the post-network era than had been the case in previous eras. Various new technologies of audience targeting favor upscale audiences and further the post-network era's emphasis on coalitions of upscale audiences over pure ratings or broad demographics.³⁶

Beginning in 2003, Howell states that religious content was increasingly represented in prime-time American television and “was even used to structure narratives and premises.”³⁷

These television studies collectively show that the demand for niche television programming has increased during the past two decades. Devotional television viewers have consistently represented a large niche market with a strong desire for religious television content both in commercial entertainment programs and in overt religious programs provided by satellite and cable television networks and distributors.

III. Factors for Assessing the Relative Marketplace Value of Devotional Television Programming

Peter Horsfield chronicles the history of religious television in American from its inception, noting that from the very beginning of television broadcasting in the U.S., religious programming has been a staple.³⁸ In Richard Wolff's study of organized religion on television, he states that from its roots in radio broadcasting, “representations of ecclesiastics on American

³⁶ Ibid, at 20.

³⁷ Ibid, at 298.

³⁸ Peter G. Horsfield, *Religious Television: The American Experience*. New York: Longman (1984).

broadcast media continued on television.”³⁹ Thus, from the very inception of television in America, devotional programming has been an important genre just as it was in radio broadcasting.

Determination of how important religious television content is to American television viewers in comparison to other types of programming has been a challenging task. In my previous testimony, I identified several important factors for determining the relative marketplace value of devotional television programming. I would like to refocus here on three of those factors. First, it is important to understand the overall size of the devotional television audience that is accessing devotional programming through satellite transmission. Second, it is important to consider the sustained demand for religious television content by the devotional audience. Third, it is important to recognize the avidity of devotional viewers to devotional television programs accessed through cable and satellite television. The size of the devotional television audience, the sustained demand for religious content in television programs, and the avidity of the devotional television audience for religious programs provide important information that helps us to determine the relative marketplace value of devotional television programs. I will now consider these three factors.

A. The Size of the Devotional Television Audience in the U.S.: 2010-2013

As noted in my previous testimony, based on existing communication research, the size of the audience that has access to religious programming has remained very large and relatively stable during the past decade.⁴⁰ Barna reported in 2002 that “the aggregate adult audience for

³⁹ Richard Wolff, *The Church on TV: Portrayals of Priests, Pastors and Nuns on American Television Series* (2010), at 6. New York: Bloomsbury Publishing USA.

⁴⁰ William J. Brown, *Assessing the Value of Devotional Television: Implications for Cable Royalties and Evangelical Influence*. In Robert H. Woods, Jr. (Ed.), *Evangelical Christians and Popular Culture, Volume 1* (pp. 143-160). Santa Barbara, CA: Praeger (2013).

Christian programming during the past month was 90 million people – approximately the same number who attend Christian churches in any given week.”⁴¹ In Pew’s 2014 study of religious media use among 3,217 Americans, they found that 23 percent of U.S. adults watched religious television during the past week, which was about 53 million people age 18 and older at that time.⁴² Given that many devotional television programs target children under age 18 (a population of 77.5 million during the time of the Pew study), it is reasonable to add another 20 million television viewers under the age of 18 to the total number of devotional television viewers, bringing the total to 73 million weekly devotional television viewers.

In the Federal Communications Commission’s media ownership study of 2007, access to specific genres of television programming was regarded as an important measure of the quantity of television programming available to television viewers.⁴³ This measure is important because it “gives a sense of what share of U.S. households could choose to view programming of a given type if they wished to do so.”⁴⁴ Results of this study indicate that during the 2003-2006 data collection period, 40.9 percent of all television networks showed primarily religious programming and 22.0 percent of all television networks broadcast religious programming.⁴⁵

In 2012, the religious television network known as the Trinity Broadcasting Network (“TBN”), which carries many of the programs produced by the devotional category claimants,⁴⁶

⁴¹ Barna. *Christian Mass Media Reach More Adults With the Christian Message Than Do Churches*. Ventura, CA: Barna Group [online, July 2002], available at <https://www.barna.com/research/christian-mass-media-reach-more-adults-with-the-christian-message-than-do-churches/>

⁴² Pew Research Center. *Religion and Public Life. Religion and Electronic Media* [online, Nov 6, 2014], available at <http://www.pewforum.org/2014/11/06/religion-and-electronic-media/>

⁴³ Gregory S. Crawford, *Television Station Ownership Structure and the Quantity and Quality of TV Programming*. Federal Communications Commission Media Ownership Study #3. Available at <https://docs.fcc.gov/public/attachments/DA-07-3470A4.pdf>

⁴⁴ Ibid, p. 2.

⁴⁵ Ibid, p. 26, Table 7.

⁴⁶ See <http://web.archive.org/web/20120404015536/http://www.tbn.org/watch-us/our-programs>.

reached approximately 100 million households in the U.S.⁴⁷ TBN is the third largest broadcasting corporation in America. The six evangelical cable networks that broadcast Jim Bakker's religious daily talk also can reach about 100 million television households.⁴⁸ Considering that Nielsen estimated the number of television households in the U.S. in 2012 to be about 114.2 million,⁴⁹ it can be stated that at least 87 percent of television households in the U.S. had access to religious programs from TBN alone during the early 2000s. The total television audience with access to devotional television programs was potentially higher, because we cannot assume that this second group of religious program outlets after TBN had access only to the same households as the ones served by TBN.

These multiple data points illustrate that despite some variation among viewership studies, the size of the devotional television audience from 2010-2013 is estimated to range from 70-75 million weekly viewers in the United States with the potential for devotional programs to reach a minimum of 100 million television households. Although devotional television viewers have been identified as a niche audience, it continues to be a very large niche audience.

B. The Sustained Demand for Religious Television Content: 2010-2013

A second important factor that helps us to understand the relative marketplace value of devotional television programming is the sustained demand in the U.S. for religious television content. The appetite for religious television content has remained strong from the 2000s into the 2010s. This sustained demand is not surprising given the statistics reported for religious beliefs among Americans. American sociologist and historian Daniel Bell's call for "a return to tradition

⁴⁷ See http://web.archive.org/web/20120404033227/http://www.tbn.org/about/images/TBN_Networks_info.pdf.

⁴⁸ Mark Ward Sr., *Introduction*, *The Electronic Church in the Digital Age*, at xviii (2016).

⁴⁹ Nielsen, *Nielsen Estimates 115.6 million TV Home in the U.S.* Available at <https://www.nielsen.com/us/en/insights/news/2013/nielsen-estimates-115-6-million-tv-homes-in-the-u-s---up-1-2-.html>

and religion to counter this social trend that saw media culture as undermining morality, the work ethic, and traditional values,” echoes the sentiments of many Americans of religious faith.⁵⁰

Harvard University scholar Robert Putman and co-author David Campbell chronicle the historical growth of Christianity across the American continent in their recent award-winning book, *American Grace*, reporting that the largest religious tradition in America are evangelicals, with roughly 30 percent of the U.S. population fitting that classification according to the 2006 Faith Matters Survey.⁵¹ Their research explains why evangelicals are the greatest producers and consumers of devotional television programming in the U.S. In Putman and Campbell’s follow-up study five years later in 2011, they discovered very little change in American religious beliefs and practices, stating the following conclusion:

To begin, the central fact is that American religious attitudes and behavior are massively stable. Consider a few examples, chosen virtually at random from hundreds of questions we asked. In 2006, 76 percent of Americans considered themselves moderately or very spiritual, compared to 75 percent in 2011... In both 2006 and 2011, 52 percent were “absolutely sure” in their belief in the afterlife... In 2006, 48 percent said they prayed at least once a day, compared to 47 percent in 2011... In 2006, 77 percent said they had given at least some money to charitable causes in the previous year, compared to 76 percent in 2011. On measure after measure, the level of aggregate stability is remarkable. Even more stunning, however, is the level of individual stability on basic religious attitudes and behavior.⁵²

⁵⁰ Doug Kellner, *Critical Perspectives on Television from the Frankfurt School to Postmodernism*. In Janet Wasko (ed.), *A Companion to Television*, 2005, Malden, MA: Blackwell Publishing, p. 36.

⁵¹ Robert D. Putnam & David C. Campbell, *American Grace* 16-17 (2012).

⁵² *Ibid*, at 554-555.

This research explains why religious television viewing has also been very stable. The religious beliefs and practices of Americans did not substantively change during the 2000s.

Jean Elshtain's review of Putnam and Campbell's study of religion in America concludes that "religion in America unites us rather than divides us" despite "extraordinary religious diversity and unusually high levels of religious devotion."⁵³ She notes the authors' research "demonstrates that religious commitment is a foundation, perhaps even the most important foundation, of American liberal democracy."⁵⁴

In Barna's 2010 study of religion, media and the public sphere in America, they found that in a random sampling of 1,002 U.S. adults, "two out of every three adults (67%) claimed to have a "personal relationship" with Jesus that is currently active and that influences their life."⁵⁵ Their study also indicates that 34% believe Jesus speaks to them "through sermon or teaching content concerning their immediate situation or need" and that "31% believe Jesus speaks to them through words spoken to them by someone else who was speaking for God."⁵⁶

In Barna's April 2014 study, they found that 79% of Americans believe that the Bible is sacred and that 88% of U.S. households own a Bible, with an average of 4.7 Bibles per household.⁵⁷ They also found that 56% of the respondents said "the Bible brings me closer to God" and 32% said "The Bible brings me comfort or helps to solve my problems."⁵⁸

These beliefs explain why Christian television programs, many which include Bible teaching, are so important for American Christians. Gary Edgerton, who has written on the

⁵³ Jean Bethke Elshtain. *Religion and American Public Life: A Discussion of Robert Putnam and David Campbell's Saving Grace: How Religion Divides and Unites Us*. Perspectives on Politics 10, no. 1 (2012), 107.

⁵⁴ Ibid, at 108.

⁵⁵ Barna, *Americans Feel Connected to Jesus*. Ventura, CA: Barna Group, [online, April 25, 2010], available at <https://www.barna.com/research/americans-feel-connected-to-jesus/>

⁵⁶ Ibid, at 2.

⁵⁷ Barna, *The State of the Bible: 6 Trends for 2014*. Ventura, CA: Barna Group [online, 2014], available at <https://www.barna.com/research/the-state-of-the-bible-6-trends-for-2014/>

⁵⁸ Ibid.

history of American television, also explains why devotional viewers' choice of television programs is so important to them. He states that "just as television has profoundly affected and altered every aspect of contemporary life – from the family to education, government, business, and religion – the medium's fictional and non-fictional portrayals have similarly transformed the way tens of millions of viewers think about historical figures and events."⁵⁹

Two additional television viewing statistics are also relevant to this time period. One of the most successful television miniseries of the 2010s decade, broadcast in 2013, was the History Channel's miniseries, *The Bible*, which was seen by more than 13 million television viewers in its initial broadcast and garnered more than 100 million cumulative viewers.⁶⁰ *The Bible* became the No. 1 cable entertainment telecast of the year by specifically conducting a grass-roots marketing campaign to reach out to evangelicals.⁶¹ The success of this miniseries was due to the large numbers of devotional television viewers who tuned in.

The second relevant television series that attracted large numbers of devotional television viewers was A & E's television series *Duck Dynasty*, whose cast members often appeared on devotional programs like *The 700 Club*. The series lead actor, Phil Robertson, made it clear the program provided a platform for him to share his Christian faith.⁶² In 2013, *Duck Dynasty* averaged 14.6 million viewers per episode and had already generated \$400 million in

⁵⁹ Gary R. Edgerton, "Where the Past Comes Alive": *Television, History, and Collective Memory*. In Janet Wasko (ed.), *A Companion to Television*, 2005, Malden, MA: Blackwell Publishing, p. 364.

⁶⁰ Ted Baehr, *The Bible in Movies and Television*, The Washington Times [online, 2014], available at <https://www.washingtontimes.com/news/2014/dec/11/the-bibles-influence-the-bible-and-movies-and-tele/>

⁶¹ Nellie Andreeva, 'The Bible' & 'Vikings' Open Big With 13.1 Million & 6.2 Million Viewers, Respectively. Deadline [online, March 4, 2013], available at <https://deadline.com/2013/03/historys-the-bible-opens-huge-with-13-1-million-viewers-445296/>

⁶² Steve Warren, CBN News, 'I Have Not and Will Not Be Ashamed of the Gospel of Jesus Christ': 'Duck Commander' Phil Robertson Responds to Criticism of His New Book [online, 2012], available at <https://www1.cbn.com/cbnnews/entertainment/2018/december/i-have-not-and-will-not-be-ashamed-of-the-gospel-of-jesus-christ-duck-commander-phil-robertson-responds-to-criticism-of-his-new-book>

merchandize sales.⁶³ Viamedia geographically charted the viewer ratings of *Duck Dynasty*, showing its greater popularity in the southern states of the Gulf Coast region and in Tennessee, Kentucky, and West Virginia.⁶⁴ These are the same regions of the U.S. where Putnam and Campbell report the highest concentrations of evangelical Christians.⁶⁵

The high audience ratings and financial success of the *Bible* miniseries and of *Duck Dynasty* demonstrate the strong desire of devotional television viewers for religiously-oriented television programs.

Julia Corbett makes a cogent argument for the continued popularity of devotional television programs, especially those created by Christian broadcasters, explaining:

A significant number of people cannot find many programs on commercial television that do not run afoul of their values and tastes in entertainment. They want something more from television. One segment of the population turns to public television for what they want. A larger segment turns to Christian television. It is, in other words, a response to a very real need for viewing options other than commercial networks. As the percentage of conservative, fundamentalist, and evangelical Christians in the population has increased, so has the need for and the popularity of Christian television. The increasing conservatism and evangelicalism of American Christianity indicates that Christian television will continue to be an important element in the entertainment industry and in religion.⁶⁶

⁶³ Christopher Palmeri, Andy Fixmer, and Lauren Coleman-Lochner, *Duck Dynasty Empire estimated to be Worth \$500 Million U.S.*, The Star [online, Dec. 24, 2013]. Available at https://www.thestar.com/business/2013/12/24/duck_dynasty_empire_estimated_to_be_worth_500_million_us.html

⁶⁴ Viamedia, *It's Duck Season* [online, January 19, 2016], available at <https://viamediatv.com/its-duck-season/>

⁶⁵ Putnam and Campbell, *American Grace*, at 272.

⁶⁶ Julia Mitchell Corbett, *Religion in America* (fourth edition). Prentice Hall, 2000, p. 189.

In summary, these studies illustrate why there has been a sustained demand for devotional television content during the early 2010s. Although no single study has determined the exact number of television viewers who regularly consume religiously-oriented television programs, the body of television research, including many of the studies cited in this testimony, show that from 70-75 million Americans have frequently watched both commercial and religious television programs during this time period specifically for their religious content. I conclude that the sustained demand for devotional television content and programs was both extensive and strong in the United States from 2010-2013 and in no way diminished from the previous decade.

C. The Avidity of the Devotional Television Audience

A third important factor directly related to the marketplace value of devotional television programming is the perceived value of the programming, which some communication scholars identify as the *avidity* of the program viewers. Audience avidity has been studied extensively by sports communication scholars.⁶⁷ Based on Cory Law and Wayne DeSarbo's definition of fan avidity, television program avidity can be defined as "the level of interest, involvement, passion, and loyalty a television viewer exhibits to a particular television program."⁶⁸ Just as more avid sports fans demand more sports television programming, more avid devotional practitioners of a religious faith demand more religious television programming. As I noted in my testimony in the 2004-2005 proceeding, there are a number of important reasons why religious television viewers exhibit a strong avidity to the television programs that they watch, including: (1) a concern about increasing depictions of sex and violence in television programs, (2) a desire for moral and spiritual content in television programs, (3) a growing distrust of the television news media, (4) a desire for greater political awareness, (5) an increased competition for religious media consumers through new media technologies, and (6) demographic changes in the U.S. leading to a greater interest in religious television programming.⁶⁹ These reasons remain valid in the 2010-

⁶⁷ Wayne DeSarbo & Robert Madrigal, *Exploring the Demand Aspects of Sports Consumption and Fan Avidity*, Interfaces, vol. 42, no. 2, Analytics in Sports, Part I: General Sports Applications (March-April 2012), 199-212.

⁶⁸ See Cory Law, *Avid Fan's Impact on Casual Fans*, Fisher Digital Publications [online, 2013], available at https://fisherpub.sjfc.edu/sport_undergrad/57/; and Wayne S. DeSarbo, *Measuring Fan Avidity Can Help Marketers Narrow Their Focus*, Sports Business Journal, (December 2009), 13-14.

⁶⁹ William J. Brown, "Assessing the value of Devotional Television: Implications for Cable Royalties and Evangelical Influence." In Robert H. Woods, Jr. (Ed.), *Evangelical Christians and popular culture, Volume 1* (2013, pp. 143-160). Santa Barbara, CA: Praeger.

2013 proceedings as the convergence of sexual content and violence on television has increased in the past decade.⁷⁰

Several of these reasons for placing a high value on accessing religious television programs were identified many years ago by Robert Abelman in his ground-breaking study on religious television viewers. Abelman revealed that one of the primary motivations for watching religious television programs is reactionary, resulting from viewers' objection to the perceived degradation of entertainment television.⁷¹ Devotional television viewers have a strong avidity for devotional programs because they regard much of the existing television fare as morally repugnant and they demand content that they believe teaches good moral beliefs and behavior.

In addition to seeking television fare consistent with their moral beliefs, devotional television audiences appreciate the products advertised that can support their family's religious values and beliefs. Jörg Stolz's research shows that devotional viewers seek not only intangible benefits of religious television programs, such as spiritual growth and encouragement, but they also respond to appeals for religious products that deliver "immediate and identifiable benefits beyond the transcendent otherworldly claims" of an explicit religious nature.⁷² In their 2009 book on the ministries of Joel Osteen, T.D. Jakes, Brian McLaran, Paula White, and Rick Warren, five of the leading producers of religious media content, Shayne Lee and Phillip Sinitiere contend that suppliers of religious television programs "thrive in a competitive spiritual marketplace because they are quick, decisive, and flexible in reacting to changing conditions,

⁷⁰ Moon J. Lee, Stacey Hust, Lingling Zhang, & Yunying Zhang. *Effects of violence against women in popular crime dramas on viewers' attitudes related to sexual violence*. Mass Communication and Society 14, no. 1 (2010): 25-44.

⁷¹ Robert Abelman, "Why do People Watch Religious TV?: A Uses and Gratifications Approach." *Review of Religious Research* 29, no. 2 (1987): 199-210.

⁷² Jörg Stolz, "Salvation Goods and Religious Markets: Integrating Rational Choice and Weberian Perspectives." *Social Compass* 53, no. 1 (2006), p. 29.

savvy at packaging and marketing, and resourceful at offering spiritual rewards that match the tastes and desires of religious consumers.”⁷³ Thus, the avidity of devotional television viewers is built on both their spiritual and moral values and beliefs and on their desires as consumers to purchase products and services that support those moral values and beliefs.

In summary, my review of the relevant academic literature in preparation for this testimony leads me to several conclusions. First, the size of the devotional television audience that access religious programs through cable and satellite subscription services is a large niche market. Second, the devotional television audience that is accessing religious programs through cable and satellite subscription services has a strong avidity to the programs they are watching. The strong avidity of devotional television viewers indicates their decision to subscribe to a cable or satellite television service will be substantially predicated on what religious programs are carried by those services. Third, the industry changes from television broadcasting to cable and satellite subscription services to Internet-based a-la-carte distribution systems is enhancing the power of niche audiences, and those who have a strong demand for devotional programming content.

IV. Determining the Relative Marketplace Value of Devotional Television Programming in the Era of Change from Television Broadcasting to Satellite and Cable Distribution

In my testimony in 2016, I indicated that I strongly support giving greater weight to survey methodologies than to other kinds of evidence in determining the relative marketplace value of various categories of copyright royalty claimants’ programming. As I stated previously, I greatly appreciate the Judges’ willingness to review and consider many methodological

⁷³ Shayne Lee and Phillip Luke Sinitiere. *Holy Mavericks: Evangelical Innovators and the Spiritual Marketplace*. NYU Press, 2009, p. 3.

approaches and data sources to determine a fair allocation of cable royalties among the competing categories. I also concur with the Judges' recognition that not all methodologies are of equal value in determining relative market value of various genres of programs in a rapidly changing industry.

In my assessment of various measurement tools, I continue to support the Bortz Survey and other similar surveys as the most appropriate tools for determining the relative marketplace value of program genres. There are two important market conditions that reinforce my support for survey approaches in regards to compensation for satellite distribution of television programming: the melding of cable and satellite television audiences into a single market and the skewing of devotional viewers toward older and more rural television audiences that favor satellite transmission.

A. Melding of Cable and Satellite Television Viewers

Recent research shows that communication and media scholars consider both cable and satellite television subscribers as a unified audience in contrast to television viewers relying on network broadcasting to receive programming. In Waterman and Han's 2010 study of the television industry's transition from broadcasting to multi-channel video providers (MVPDs) cited earlier, they regard cable and DBS systems as a unitary delivery system for television programming.⁷⁴

In Stipp's study of the branding of television networks, he makes no distinction between the branding strategies of satellite and cable networks, recognizing they represent a comprehensive delivery system in place of television broadcasters.⁷⁵ Stipp simply divides

⁷⁴ David Waterman and Sangyong Han, 2010, at 15.

⁷⁵ Horst Stipp, 2012, at 115.

television networks in two groups: traditional “TV stations” and “cable systems” inclusive of both satellite and cable delivery systems.⁷⁶

In his study of policy and marketing strategies for digital media, Frieden also treats cable and satellite television distributors as part of the same distribution market in direct competition with newer digital distribution platforms.⁷⁷ Frieden notes that the demand for “more flexible access to ‘must-see’ television coupled with a vastly proliferating array of new, niche content enhances the value proposition of broadband subscription,” putting even more pressure on satellite and cable operators to meet the demands of niche audiences like devotional viewers.⁷⁸

Since cable and satellite distributors directly compete for the same viewers and regularly offer financial incentives to convince subscribers to switch from cable to satellite and vice versa, there has been a melding of these viewers into a unified block of non-broadcast viewers. There is no evidence in the academic literature to regard satellite television operators as having a different set of standards of which to evaluate their subscribers as compared to cable television operators. To the contrary, the academic literature now generally treats cable and satellite as a television channel delivery system. In addition, there is no evidence that shows that satellite television providers will act any differently than the cable television providers is assessing relative market value. The same bundling theoretical predictions that apply to cable operators are applied to satellite television operators when considering the willingness of those in each television household to pay for a certain channel or service that carries certain types of programming.

⁷⁶ Ibid, at 115.

⁷⁷ Rob Frieden, *Next-generation Television and the Migration from Channels to Platforms*. In *Policy and Marketing Strategies for Digital Media*, pp. 60-72. Routledge, 2014. Available at file:///C:/Users/willbro/Downloads/Liu-Picard14.pdf

⁷⁸ Ibid, at 69.

B. Older and More Rural Devotional Television Viewers Value Satellite Services

Second, television research indicates that the devotional television audience receiving devotional programming via satellite or cable is older and more rural than the general television audience. In Taneja et al.'s 2012 study of media consumption across platforms, they found that despite all the new technologies available to access video content, the largest media consumption pattern in terms of "time spent is 'media at home' that weds a place-based medium (television) to its predominant uses, especially among older viewers and those with lower education."⁷⁹ This demographic pattern coincides with the lower education levels of rural Americans as compared to Americans living in urban areas.⁸⁰

Younger television viewers are actually becoming less dependent on television. Matrix reports that market research shows the next generation of television viewers will have less of a commitment to watching video programming on television sets than Millennials do as more and more young people opt for internet-based program distributors like Netflix.⁸¹ A regression analysis study by Liebowitz and Zentner supports Matrix's findings, indicating that internet use "moderately reduces television viewing for the youngest Americans" but has "no impact on the viewing of the oldest Americans."⁸²

Julia Corbett notes that viewers of Christian television programs typically hold "evangelical and fundamentalist or very conservative religious beliefs" and that "most viewers

⁷⁹ Harsh Taneja, James G. Webster, Edward C. Malthouse, and Thomas B. Ksiazek, *Media Consumption across Platforms: Identifying User-defined Repertoires*. New media & society, volume 14, no. 6 (2012): 951-968.

⁸⁰ Andrew Soergel, *In America's Rural-Urban Divide, Age, Earnings and Education Are Prominent*, U.S. News & World Report [online, Dec. 8, 2016], available at <https://www.usnews.com/news/articles/2016-12-08/in-americas-rural-urban-divide-age-earnings-and-education-are-prominent>

⁸¹ Sidneyye Matrix, *The Netflix Effect: Teens, Binge Watching, and On-demand Digital Media Trends*. Jeunesse: Young People, Texts, Cultures 6, no. 1 (2014): 119-138.

⁸² Stan J Liebowitz and Alejandro Zentner. "Clash of the titans: does Internet use reduce television viewing?." Review of Economics and Statistics 94, no. 1 (2012): 234-245.

live in the South and the Midwest,” the majority are female, and are older than the general population.⁸³ She estimates that “between two-thirds and three-fourths are age 50 or older.”⁸⁴

John Green’s research of how religion influences American elections clearly shows that regions of the country that are strongly evangelical, such as the Southern Crossroads (including Texas, Oklahoma, Arkansas, and Louisiana), the Mountain West, and the South, overwhelming voted for George Bush in the 2004 Presidential election instead of John Kerry.⁸⁵ These are the same regions of the country which encompass more rural areas and less highly populated urban areas, expected to have the highest percentage of viewership of devotional television programs, as church attendance correlates highly with devotional television viewing.

Green’s tabulation of major religious traditions by state, provided in Appendix B of his book, shows that more rural states have much higher percentages of Evangelical Protestants and states with the lowest percentages of Evangelical Protestants like New York, Connecticut, Massachusetts, New Jersey, Rhode Island, Maryland, Pennsylvania, Illinois and California are heavy urbanized.⁸⁶

In Bret Carroll’s work on mapping religious groups geographically across the American continent, he shows that evangelical Christians, among the most avid devotional television viewers, are dominant in the South, Midwest, and rural regions of the United States.⁸⁷ These are the same regions that favor satellite television services as opposed to cable services that are dominant in urban areas.

⁸³ Julia Mitchell Corbett, 2000, p. 187.

⁸⁴ Ibid, at 875.

⁸⁵ John Clifford Green, *The Faith Factor: How Religion Influences American Elections*. Greenwood Publishing Group, 2007. Westport, CT, pp. 120-126.

⁸⁶ Ibid, Appendix B.

⁸⁷ Bret E. Carroll, *The Routledge Historical Atlas of Religion in America*, 2000. New York: Routledge.

These resources show why satellite television services are especially attractive to devotional television viewers. Devotional viewers tend to be older than most television viewers and they are more likely to live in less populated regions of the country that use satellite services more than other regions of the U.S. They also are more likely to find the niche programming on satellite services that carry many diverse channels. Television viewers who live in these more rural and religious areas of the country represent the niche markets I believe cable and satellite system operators have in mind when they consider building up and maintaining a diversified subscribership.

Therefore, with regards to the 2010-2013 Satellite Television Royalty Distribution, I continue to support the Judges use of the survey methodologies advanced by Bortz and Horowitz in the 2010-2013 cable allocation proceeding as the most appropriate and useful tools for allocating shares among the various program claimant categories in the satellite allocation proceeding (notably Devotional, Sports, Program Syndicators and Commercial Television).

I agree that the willing buyer in the hypothetical market is not the person viewing certain genres of television programs; rather, it is the cable and satellite television operators. These operators are the ones that choose the distant signals to be retransmitted and pay the compulsory license fees for the privilege of delivering those signals to their customers. These system operators seek to maximize subscribership by the selection of diverse content, which appeals to a most diverse subscriber base, which in turn will maximize the return for their investment in distant signals. I believe the respondents to the surveys do consider in their minds the avidity of television viewers for various types of television programming. Therefore, I support that the Judges have properly concluded that when allocating shares among the various categories of program claimants in Phase I (or Allocation) proceedings, ratings are less relevant

than the opinions of the cable operators, as tested by the Joint Sports Claimants' Bortz survey and the Program Suppliers' Horowitz survey.⁸⁸

V. Conclusion

In conclusion, to the extent the Judges need to determine the relative marketplace value of different categories of programming (including devotional programming) in the distant television market, the Bortz and Horowitz annual surveys of CSOs continues to be the best measurement tools for determining the relative marketplace value of television programming categories.

⁸⁸ That noted, as I have testified in the past, when the Judges are tasked with allocating shares *within* claimant categories, television program ratings can provide valuable and relevant information to support an intra-category division of shares.

DECLARATION

I, William Brown, declare under penalty of perjury, that the foregoing is true and correct.



William Brown

Dated: March 22, 2019

Exhibit 1

**Curriculum Vitae
Dr. William J. Brown**

Curriculum Vitae

Dr. William J. Brown

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Brief Biography

Dr. William J. Brown is Professor and Research Fellow in the School of Communication and the Arts, College of Arts and Sciences, at Regent University in Virginia Beach, Virginia. He served as Dean of the College of Communication and the Arts at Regent University from 1992-2002. He then served as Chair of the Department of Strategic Communication and Journalism and Director of the Ph.D. program in communication from 2002-2017.

Dr. Brown received his Bachelor of Science Degree in Environmental Science from Purdue University, his Masters' Degree in Communication Management from the Annenberg School of Communication at the University of Southern California in Los Angeles, and his Masters' and Doctor of Philosophy Degrees in Communication, also from the University of Southern California. His academic research interests include media effects, news diffusion, entertainment-education for social change, and celebrities and social influence. Dr. Brown has taught communication courses at the University of Southern California, the University of Hawaii, the University of the Nations in Kona, Hawaii, and Regent University. His favorite courses include doctoral quantitative research methods, influence through entertainment, media and social influence, intercultural communication, and communication campaigns.

Dr. Brown is also a partner and consultant of Brown, Fraser & Associates, a communication research and consulting firm in Chesapeake, Virginia. He and his colleague, Dr. Benson Fraser, have conducted more than 200 national media studies in more than 35 countries. Dr. Brown and his wife, Nancy, lived in Hong Kong for five years and have traveled extensively in Europe, Asia, and Africa to work with non-profit organizations. In 2008, Dr. Brown was a visiting scholar to the Center for Media and Health and the Netherlands Entertainment-Education Foundation. In 2009, he returned to the Netherlands to work with the Center for Media and Health as a Fulbright Senior Specialist and to lecture at several universities in the Netherlands and Belgium on the use of entertainment media for social change. In 2011, Dr. Brown was given a second Fulbright Specialist Award to Norway to work with Volda University College. He lectured at several Norwegian universities and provided consultation to a non-profit organization seeking to produce an entertainment-education film on one of Norway's historic reformers.

EDUCATION

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Department of Communication Arts and Sciences
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EXPERIENCE

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- Dec. 1986 to Jan. 1987 Administrative Project Coordinator
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- July 1981 to Aug. 1985 Communication Coordinator
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- Jan. 1980 to Aug. 1981 Administrative Assistant
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- Nov. 1979 to Mar. 1980 Research Assistant and Writer
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- May 1977 Photo-Interpreter and Computer Operator
to May 1978 Laboratory Applications for Remote Sensing
 Purdue University Research Park
- Sept. 1976 Feature Writer
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Brown, W. J. (2014). Celebrity endorsements. In T. L. Thompson (Ed.), *Encyclopedia of health communication* (pp. 156-160) Thousand Oaks, CA: Sage Publications.

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Brown, W. Joseph (2005). *Into the winds of fear*. Baltimore, MD: Publish America.

Doctoral Dissertation

Brown, W. J. (1988). Effects of "Hum Log," a television soap opera, on prosocial beliefs in India. *Dissertation Abstracts International*, 50, 01A, 20.

Masters' Thesis

Brown, W. J. (1986). *Communication technology in Third World contexts: Lessons from two case studies in Asia*. Los Angeles, CA: University of Southern California.

Academic Conference Papers and Presentations

Khoo, F., & Brown, W. J. (2018). Tweeting the election: Influences of Twitter messages on voters' perceptions during the 2016 presidential debates between Hillary Clinton and Donald Trump. Competitive paper accepted for presentation to National Communication Association's 104th Annual Convention, November 8-11, 2018, Salt Lake City, UT.

Brown, William J., & Jeffress, Michael S. (2017). *The impact of having a teacher with a disability on student attitudes toward persons with disabilities*. Competitive paper presented at the 103rd Annual Convention of the National Communication Association, November 16-19, Dallas.

Brown, W. J., & Fraser, B. P. (2017). *A cross-cultural study of social media access and internet uses in Nigeria, Gabon and Kenya*. Competitive paper presented at the 103rd Annual Convention of the National Communication Association, November 16-19, Dallas.

Khoo, F., & Brown, W. J. (2017). *Tweeting the Election: Comparative Uses of Twitter by Trump and Clinton in the 2016 Election*. Competitive paper presented at the 100th Annual Conference of the Association for Journalism and Mass Communication, August 9-12, Chicago, Illinois.

- Brown, W. J., Fraser, B. P., Lindvall, T., & Livingston, H. E. (2017). *The influence of American Idol through celebrity involvement: Parasocial interaction, identification and worship of Idol stars*. Competitive paper presented at the 67th Annual Convention of the International Communication Association, May 25-29, San Diego.
- Brown, W. J., Fraser, B. P., Lindvall, T., & Lindvall, C. (2017). *Green cartoon images have consequences: The environmental power of the short animated film*. Competitive paper presented at the 67th Annual Convention of the International Communication Association, May 25-29, San Diego.
- Khoo, F., & Brown, W. J. (2017). *Twitter election: Was twitter for Trump the winning Combination in the 2016 presidential election?* Competitive paper presented at the 42nd Annual Southeast Colloquium Association for Education in Journalism and Mass Communication, awarded Second Place Faculty Paper Award, March 9, Ft Worth, TX.
- Brown, W. J., Fraser, B. P., & Lindvall, T. (2016). *From Japan to the world: The saga of Superbook, one of the world's greatest entertainment-education children's animation series*. Competitive paper presented at the 102nd Annual Convention of the National Communication Association, November 10-13, Philadelphia.
- De los Santos, V., & Brown, W. J. (2016). *The strategic use of social media by military spouses for identity formation and acculturation during deployment*. Competitive paper presented at the 66th Annual International Communication Association Conference, June 9-13, Fukuoka, Japan.
- Fraser, B. P., Brown, W. J., Lindvall, T. R., & Kiruswa, S. (2016). *Mobile phone use in northern Tanzania*. Competitive paper presented at the 66th Annual International Communication Association Conference, June 9-13, Fukuoka, Japan.
- Jeffress, M., & Brown, W. J. (2014). *Communicating shared experiences in power soccer: Exploring the first competitive team sport for electric wheelchair users*. Top competitive paper presented at the 100th Annual Conference of the Disability Issues Caucus of the National Communication Association, November 20-23, Chicago.
- Brown, W. J., Fraser, B. P., & Lindvall, T. (2014). *Promoting global advocacy through global communication networks: Lessons learned from the Kony 2012 campaign*. Competitive paper presented at the 64th Annual International Communication Association Conference, May 22-26, Seattle, Washington.
- Brown, W. J., Lindvall, T., & Pittman, M. (2013). *Encomium Colbert: Connecting Stephen Colbert to Erasmus Catholicism*. Competitive paper presented at the Religious Communication Association, November 20, Washington, D.C.

- Hurtado, D., & Brown, W. J. (2012). *Exploring audience involvement in a transmedia enterprise: Lewis' Chronicles of Narnia*. Competitive paper presented at the 98th Annual Conference of the National Communication Association, November 14-17. Orlando, Florida.
- Crawford, K., & Brown, W. J. (2012). *Beyond partisan spaces: Analyzing redemptive experiences, parasocial interaction and media sensation in The Shack book blogs*. Competitive paper presented at the 98th Annual Conference of the National Communication Association, November 14-17. Orlando, Florida.
- Lindvall, T. R., Brown, W. J., & Fraser, B. P. (2012). *Hollywood, teach us to pray: A content analysis of feature film portrayals of prayer as models for spirituality*. Competitive paper presented at the Popular Culture Association, April 11-14, Boston, MA.
- Brown, W. J., & Argo, H. (2011). *Social networking sites and spirituality*. Competitive paper presented at the Faith and Communication Conference, Campbell University, March 23-24, Buies Creek, N.C.
- Amakye, A., & Brown, W. J. (2011). *Gender, race and online discussion by Americans of African women in an international news story*. Competitive paper presented at the 97th Annual Conference of the National Communication Association, November 15-19, New Orleans.
- Brown, W. J. (2011). *Assessing processes of relational involvement with media personas: Transportation, parasocial interaction, identification and worship*. Competitive paper presented at the 97th Annual Conference of the National Communication Association, November 15-19, New Orleans.
- Fraser, B. P., & Brown, W. J. (2011). *C. S. Lewis and Flannery O'Connor's contribution to the art of indirect communication*. Competitive paper presented at the Annual Meeting of the Religious Communication Association, November 14, New Orleans.
- Bouman, M. P., & Brown, W. J. (2011). *Facilitating a transcultural approach to entertainment-education and health promotion: A model for collaboration*. Competitive paper presented at the 61st Annual Conference of the International Communication Association, May 26-31, Boston.
- Sherring, V. A., & Brown, W. J. (2011). *Exploring women's identity and social change through soap operas: A study of two prosocial television serials in India*. Competitive paper presented at the 61st Annual Conference of the International Communication Association, May 26-31, Boston.

- Brown, W. J., Fraser, B. P., & Lindvall, T. R. (2011). *Does it have to bleed to lead, and if so, who is bleeding? Portrayals of crime and minorities on local television news*. Competitive paper presented at the Campbell University Conference on Faith and Communication, April 1-2, Buies Creek, N. C.
- Brown, W. J., & Fraser, B. P. (2010). *Operation Blessings' response to the earthquake in Haiti*. Competitive paper presented at the Religious Communication Association, Nov. 14-17, San Francisco.
- Campbell, D. S., & Brown, W. J. (2010). *Assessing effects of pre-trial publicity through agenda-setting and framing*. Competitive paper presented at the Communication and Law Division of the National Communication Association, Nov. 14-17, San Francisco.
- Brown, W. J., & Strong, D. A. (2010). *Effects of an Indian-produced prosocial children's television programme in Nepal*. Competitive paper presented at the 60th Annual Conference of the International Communication Association, June 22-26, Singapore.
- Bae, Hyuhn-Suhck, Brown, W. J., & Kang, S. (2010). *Social influence of a religious hero: The late Cardinal Stephen Kim Sou-hwan's impact on cornea donation and volunteerism*. Competitive paper presented at the 60th Annual Conference of the International Communication Association, June 22-26, Singapore.
- Buenting, D. K., & Brown, W. J. (2009). *Exploring audience involvement with Yellow Card and its promotion of sexual responsibility among African youth*. Competitive paper presented at the International and Intercultural Communication Division of the 95th Annual Conference of the National Communication Association, Nov. 12-15, Chicago.
- Huckstep, S. L. (2009). *The print news media's framing of poverty following Hurricane Katrina*. Competitive paper presented at the Mass Communication Division of the 95th Annual Conference National Communication Association, Nov. 12-15, Chicago.
- Brown, W. J. (2009). *Intercultural collaboration and creative process in entertainment-education productions*. Competitive paper presented to the National Communication Association's summer conference on Intercultural Dialogue, July 22-26, Istanbul.
- Bouman, M.P.A., & Brown, W. J. (2009). *Creative processes for health communication: Entertainment-education collaboration*. Competitive paper presented at the Health Communication Division at the 59th Annual Conference of the International Communication Association, May 21-25, Chicago.
- Brown, W. J., Barker, G., & Presnell, K. K. (2008). *The social impact of mediated celebrities: Cognitive and emotional responses to the death of Dale Earnhardt*. Competitive paper presented at the 94th Annual Conference of the National Communication Association, Nov. 21-24, San Diego.

- Strong, D. A., & Brown, W. J. (2008). *Effects of a children's entertainment-education television program in Nepal on beliefs and behavior toward people with disabilities*. Top Competitive paper award, Disabilities Interest Group, presented at the 94th Annual Conference of the National Communication Association, Nov. 20-24, San Diego.
- Brown, W. J., & de Matviuk, M.A.C. (2007). *The social influence of a sports' celebrity: The case of Diego Maradona*. Competitive paper to be presented to the annual conference of the National Communication Association, Chicago, Nov. 15-18, 2007.
- Brown, W. J., Keeler, J., & Pfeiffer, M. (2007). *The uses of YouTube among religious on-line media consumers*. Research presented at the Annual Conference of the Religious Communication Association, Chicago, Nov. 14, 2007.
- Brown, W. J. (2007). *The use of entertainment-education for social change: Examples from around the world*. Competitive paper presented to the Annual Meeting of the Virginia Association of Communication Arts and Sciences, October 19-20, Virginia Beach.
- Brown, W. J., & Fraser, B. P. (2007). *Mediated involvement with a celebrity hero: Responses to the tragic death of Steve Irwin*. Competitive paper presented at the 57th Annual Conference of the International Communication Association, May 24-29, San Francisco.
- Legg, K., Bacon, C., Fraser, B. P., Brown, W. J., & Kiruswa, S. L. (2007). *Visual study of the Maasai through digital photography*. Competitive paper presented at the Visual Studies Division at the 57th Annual Conference of the International Communication Association, May 24-28, San Francisco.
- Brown, W. J., & Pfeiffer, M. (2006). *Mediated involvement with a celebrity hero: Responding to the death of Pope John Paul II*. Competitive paper presented at the 92nd annual convention of the National Communication Association, November 16-19, San Antonio.
- Brown, W. J., & Fraser, B. P. (2006). *Utilitarian and communitarian ethical approaches to HIV/AIDS prevention in sub-saharan Africa*. Competitive paper presented at the annual conference of the African Studies Association, November 15-18, San Francisco, CA.
- Barker, G., & Brown, W. J. (2006). *Cultural influences on the news: Portrayals of the Iraq War by Swedish and American media*. Competitive paper presented at the 56th Annual Conference of the International Communication Association, June 19-23, Dresden, Germany.
- Brown, W. J., Kiruswa, S. L., & Fraser, B. P. (2005). *Promoting HIV/AIDS prevention among the military in Kenya*. Competitive paper presented to the 55th Annual Meeting of the International Communication Association, May 26-30, New York.

- Keeler, J., & Brown, W. J. (2004). Assessing the impact of *The Passion of the Christ*. Competitive paper presented at the 90th Annual Conference of the National Communication Association, November 12-15, Chicago.
- Brown, W. J., Keeler, J., & Shen, J. (2004). Audience responses to *The Passion of the Christ*. Competitive paper presented to the Annual Conference of the Society for the Scientific Study of Religion, October 22-24, Kansas City.
- Brown, W. J., Fraser, B. P., & Kiruswa, S. (2004). *Promoting HIV/AIDS prevention through dramatic film: Lessons from Tanzania and Kenya*. Competitive paper presented to the Fourth International Conference on Entertainment-Education for Social Change, September 25-30, Cape Town, South Africa.
- Brown, W. J., & Fraser, B. P. (2004). *Turning celebrity capital into political influence: Lessons From Schwarzenegger's Gubernatorial Election in California*. Competitive paper presented to the Political Communication Division at the 54th Annual Conference of the International Communication Association, May 27-31, New Orleans.
- Welch, S. R., & Brown, W. J. (2004). *Post-September 11th Perceptions of Islam and the Spiral of Silence*. Competitive paper presented to the Mass Communication Division at the 54th Annual Conference of the International Communication Association, May 27-31, New Orleans.
- Smith, M. R., & Brown, W. J. (2004). *World Magazine's news coverage and news agenda setting*. Competitive paper presented to the Campbell University Conference on Faith and Communication, May 15, Buies Creek, North Carolina.
- Brown, W. J., Fraser, B. P., & Kiruswa, S. L. (2003). *Identification as a process of social change: Audience responses to heroes and celebrities*. Competitive paper presented to the Rhetorical and Communication Theory Division at the 89th Annual Convention of the National Communication Association, November 19-23, Miami.
- Brown, W. J., Fraser, B. P., & Kiruswa, S. (2003). *Promoting HIV/AIDS prevention through entertainment-education: Film intervention in the Tanzanian military*. Competitive paper presented to the Mass Communication Division at the 89th Annual Convention of the National Communication Association, November 19-23, Miami.
- Keeler, J., & Brown, W. J. (2003). *Who do they trust about religion in a mediated world: Are celebrities shaping religious beliefs and practices?* Competitive paper presented to the Annual Conference of the Society for the Scientific Study of Religion, October 24-26, Norfolk, VA.

- Brown, W. J., Fraser, B. P. (2003). *Exploring the boundaries of heroes, celebrities and role models after 9/11: Lessons from Shanksville*. Competitive paper presented to the Mass Communication Division of the International Communication Association's annual conference, May 24-27, San Diego, CA.
- Brown, W. J., Fraser, B. P. (2003). *Diffusing global culture through celebrity identification*. Competitive paper presented to the World Communication Association's biennial Conference, July 21-14, Stockholm, Sweden.
- Brown, W. J., Fraser, B. P., Kiruswa, S., & Bocarnea, M. C. (2002). *Promoting HIV/AIDS prevention through soap operas: Tanzania's experience with "Maisha."* Competitive paper presented at the 53rd Annual Conference of the International Communication Association, July 15-19, Seoul, Korea.
- Brown, W. J., & Fraser, B. P. (2001). *Transnational celebrity identification*. Competitive paper presented at the 16th biennial conference of the World Communication Association, July 1-5, Santander, Spain.
- Brown, W. J., Fraser, B. P., & Bocarnea, M. (2001, May). *Identification with mediated celebrities: Remembering John F. Kennedy, Jr.* Competitive paper presented to the 51st Annual Conference of the International Communication Association, May 24-28, Washington, D.C.
- Edwards, R. W. C. L., Reynolds, R. A., & Brown, W. J. (2000, October). *An intercultural comparison of two styles of parental communication: American and Chinese*. Competitive paper presented at the 50th Annual Conference of the International Communication Association, May 24-28, Washington, D.C.
- Brown, W. J., & Fraser, B. P. (2000). *Star light star bright: The potential of celebrity identification for entertainment-education*. Competitive paper presented to the Third Entertainment-Education for Social Change Conference, September 17-24, Arnhem, The Netherlands.
- Wales, L., & Brown, W. J. (2000, August). *Predicting box office receipts from film reviews and MPAA ratings*. Competitive paper presented to 54th Annual Conference of the University Film and Video Association, Colorado Springs, CO.
- Bocarnea, M. C., Brown, W. J., & Fraser, B. F. (2000, July). *Communist mythopoeia: Romania doctrinal documents on edifying the new man*. Competitive paper presented to Rochester Intercultural Conference, Rochester, N.Y., July 20-22, 2000.

- Martin, G., Reynolds, R. A., & Brown, W. J. (1999, November). *Individualism and Collectivism As Predictors of Functional Roles and Communicator Style of Individual Members of Multicultural Teams*. Competitive paper to be presented at the 85th National Conference of the National Communication Association, November 4-7, Chicago.
- Lindvall, T. R., Brown, W. J., & Fraser, B. P. (1999, November). *A holy critique: Examining visual translations of the Bible*. Competitive paper to be presented at the 85th National Conference of the National Communication Association, November 4-7, Chicago.
- Brown, W. J., Basil, M. D., & Bocarnea, M. C. (1999, May). *Involvement with an American Role model: Mark McGwire's influence on public opinion toward two health issues*. Competitive paper presented at the 49th Annual Conference of the International Communication Association, May 27-31, San Francisco.
- Basil, M. D., & Brown, W. J. (1999, May). *A comparative analysis of multiple data sets of identification with Princess Diana: When student samples are acceptable*. Competitive paper presented to the 49th Annual Conference of the International Communication Association, May 27-31, San Francisco.
- Brown, W. J., Basil, M. D., & Bocarnea, M. C. (1998, July). *Responding to the death of Princess Diana: Audience involvement with an international celebrity*. Competitive paper presented to the 48th Annual Conference of the International Communication Association, July 20-24, Jerusalem.
- Keeler, J., Brown, W. J., & Elser, G. (1998, July). *Attitudes and behavior regarding religious expression in the workplace: Legal issues and implications for managers*. Competitive paper presented to the 48th Annual Conference of the International Communication Association, July 20-24, Jerusalem.
- Fraser, B. P., & Brown, W. J. (1998, July). *Cross-cultural celebrity appeal: Lessons from Elvis Presley impersonators*. Competitive paper presented to the summer conference of the National Communication Association and International Communication Association, July 15-18, Rome.
- Brown, W. J., Fraser, B. P., & Bocarnea, M. (1997, May). *Media coverage of court cases and effects on the public: Audience responses to O.J. Simpson's criminal trial*. Competitive paper presented at the 47th annual conference of the International Communication Association, May 23-27, Montreal.
- Brown, W. J., & Fraser, B. P. (1997). *The diffusion of "Superbook": One of the world's most popular entertainment-education series*. Competitive paper presented at the 47th annual conference of the International Communication Association, May 23-27, Montreal.

- Singhal, A., & Brown, W. J. (1997, May). *Entertainment-education: Where has it been? Where is it going?* Competitive paper presented at the second conference on Entertainment-Education for Social Change, May 7-9, Athens, Ohio.
- Piper, D. P., Keeler, J., & Brown, W. J. (1997, April). *Audience involvement with "Touched by an Angel."* Competitive paper presented at the 42nd annual convention of the Broadcast Education Association, April 4-7, Las Vegas.
- Bocarnea, M. C., Fraser, B. P., & Brown, W. J. (1996). *Portrayals of post-communist Romania in United States' newspapers and magazines.* Competitive paper presented at the Global Communication Conference, July, Rochester, N.Y.
- Brown, William J., & Fraser, B. P. (1995). *Public perceptions of negative political campaigns: Responses to the 1994 Virginia senate race.* Competitive paper presented at the World Communication Association's 13th biennial conference, July 23-27, Vancouver, B.C.
- Fraser, B. P., & Brown, W. J. (1995). *An analysis of daytime television talk shows.* Competitive paper presented at the World Communication Association's 13th biennial conference, July 23-27, Vancouver, B. C.
- Brown, W. J., & Fraser, B. P. (1995). *Effects of media coverage of the O.J. Simpson Trial on beliefs about the legal system.* Competitive paper to be presented to the Communication Law and Policy Group at the 45th Annual Conference of the International Communication Association, May 27-31, Albuquerque.
- Gilmore, K., & Brown, W. J. (1995). *White house spin doctors and media watchdogs: David Gergen's presidential communication.* Competitive paper to be presented to the Political Communication Division at the 45th Annual Conference of the International Communication Association, May 27-31, Albuquerque.
- Singhal, A., & Brown, W. J. (1995). *Entertainment-education: Where it's been, where it is, and where it should go in the future.* Competitive paper to be presented to the Intercultural and Development Communication Division at the 45th Annual Conference of the International Communication Association, May 27-31, Albuquerque.
- Brown, W. J., Fraser, B. P., & Bocarnea, M. C. (1994). *The agenda-setting effects of media coverage of the O.J. Simpson trial.* Competitive paper presented to the Western States Communication Association, Portland, February 11-14.
- Babb, V., & Brown, W. J. (1994). *Adolescents' development of parasocial relationships through popular television situation comedies.* Competitive paper to be presented to the 44th Annual Conference of the International Communication Association, July 11-15, Sydney.

- Basil, M. D., & Brown, W. J. (1994). *A critical test of the impersonal versus differential impact hypothesis on concern about AIDS*. Competitive paper (top 3 ranking) presented to the 44th Annual Conference of the International Communication Association, July 11-15, Sydney.
- Brown, W. J. (1994). *Lessons learned about the entertainment-education strategy at home and abroad*. Competitive paper presented to the Southern States Communication Association, April 6-9, Norfolk, Virginia.
- Brown, W. J., & Fraser, B. P. (1993). *A comparative analysis of the uses and impact of daytime television talk shows on religious television viewers*. Competitive paper presented to the Annual Conference of the Society for the Scientific Study of Religion, October 28-31, 1993, Raleigh, N.C.
- Fraser, B. P., & Brown, W. J. (1993). *Religious research and agenda-setting: Issues of public concern*. Competitive paper presented to the Annual Meeting of the Religious Research Association, October 28-31, 1993, Raleigh, NC.
- Brown, W. J. (1993). *Media and its impact on race relations*. Competitive paper presented to the World Communication Association, July 26-31, Pretoria, Republic of South Africa.
- Brown, W. J., & Fraser, B. P. (1993). *A comparative analysis of audience involvement with "The 700 Club" and other daytime television talk shows*. Competitive paper presented to the 3rd Christianity and Communication Conference, June 2-4, Virginia Beach, VA.
- Brown, W. J., & Basil, M. D. (1993). *Impact of the "Magic" Johnson news story on AIDS prevention*. Competitive paper presented to the 43rd Annual Conference of the International Communication Association, May 27-31, Washington, D.C.
- Singelis, T. M., & Brown, W. J. (1993). *Collectivist communication behavior and concepts of self: An individual-level analysis*. Competitive paper presented to the 43rd Annual Conference of the International Communication Association, May 27-31, Washington, D.C.
- Singhal, A., Rogers, E. M., & Brown, W. J. (1992). *Entertainment telenovelas for development: Lessons learned about creation and implementation*. Competitive paper presented to the International Association for Mass Communication Research, August 16-21, Sao Paulo, Brazil.
- Basil, M. D., Brown, W. J., & Hariguchi, G. (1992). *Interpersonal communication in news diffusion: A study of "Magic" Johnson's announcement*. Competitive paper presented to the Association for Education in Journalism and Mass Communication, August 5-8, Montreal.

- Brown, W. J., & Basil, M. D. (1992). *Celebrity appeal for AIDS prevention: Lessons for Japan from the U.S. news media*. Competitive paper presented to the Communication Association of Japan, June 27-28, Tokyo.
- Brown, W. J., & Singhal, A. (1992). *Entertainment-education media: Strategies Lessons for Japan from the U.S. news media*. Competitive paper presented to the Communication Association of Japan, June 27-28, Tokyo.
- Reynolds, J. L., & Brown, W. J. (1992). *An impression management theory perspective on verbal aggression strategies*. Competitive paper presented at the 62nd Annual Conference of the Western States Communication Association, February 21-24, Boise, Idaho.
- Brown, W. J., & Facciola, P. C. (1991). *Effects of media coverage on public attitudes and beliefs of the Persian Gulf War*. Competitive paper presented at the seventy-seventh Annual Conference of the Speech Communication Association, Oct. 31-Nov. 3, Atlanta.
- Brown, W. (1991). *Effects of an AIDS communication campaign on attitudes, beliefs, and communication behavior*. Competitive paper presented at the 41st Annual Conference of the International Communication Association, May 23-27, Chicago.
- Brown, W. J., & Cody, M. J. (1990). *Promoting women's status through a television soap opera: Effects of "Hum Log" in India*. Competitive paper presented at the 76th Annual Convention of the Speech Communication Association, November 1-4, 1990, Chicago.
- Brown, W. J., & Singhal, A. (1990). *Ethical dilemmas of prosocial television*. Competitive paper to be presented at the 40th Annual Conference of the International Communication Association, June 24-29, 1990, Dublin, Ireland.
- Brown, W. J. (1989). *The role of entertainment television for development*. Competitive paper presented at the 39th Annual Conference of the International Communication Association, May 25-29, 1989, San Francisco.
- Brown, W. J. (1988). *U.S. foreign policy with Iran: Portrayals by American newspapers and the Tower Commission Report*. Competitive paper presented at the 38th Annual Conference of the International Communication Association, May 29-June 2, 1989, New Orleans.
- Brown, W. J. (1987). *What makes terrorist rhetoric compelling?* Competitive paper presented at The 57th Annual Conference of the Western Speech Communication Association, February 17-21, San Diego, CA.
- Brown, W. J. (1987). *Cultural context and national development in Japanese-American relations*. Competitive paper presented at the Communication Association of Japan's 17th Annual Conference, June 20-21, Tokyo.

Brown, W. J. (1987). *Mediated communication flows during a terrorist event: The TWA Flight 847 hijacking*. Competitive paper presented at the 37th Annual Conference of the International Communication Association, May 21-25, 1987, Montreal.

AWARDS AND MERITS

Fulbright Specialist, Norway, October, 2011

Fulbright Specialist, the Netherlands, April-May, 2009

Fulbright Specialist Program nominee (five-year recognition), August 2007

Fulbright Fellowship nomination by the Fulbright Commission, November 2006

Fulbright Fellowship nomination by the Fulbright Commission, November 2004

The Chancellor's Award, 2003, Regent University

Who's Who in American Education, 1992 to present.

Faculty Fellow, Aug-Dec, 1989, Center for Arts & Humanities at the University of Hawaii

Awarded a research fellowship, University of Hawaii, to conduct HIV/AIDS prevention research.

Distinguished Student, 1975, 1976, 1977, and 1978, Purdue University, West Lafayette, Indiana.

Who's Who in American High Schools, 1974.

Distinguished Honor Student, 1970-1974: Watertown High School, Watertown, Massachusetts.

RESEARCH AND PRODUCTION GRANTS

2016: Awarded \$4,800 from Regent University to study religious television viewing in Iran.

2015: Part of a teaching and research team from the School of Communication and the Arts that was awarded \$30,000 by one foundation for the education and training of media professionals in Egypt working in media organizations in traditionally Islamic nations.

2014: Part of a teaching and research team in the School of Communication and the Arts awarded \$160,000 by three foundations for the education and training of media professionals in Jordan working in media organizations in traditionally Islamic nations.

2013: Part of a teaching and research team in the School of Communication and the Arts awarded \$170,000 by three foundations for the education and training of media professionals in Belgium working in media organizations in traditionally Islamic nations.

2008: Awarded \$5,000 from Regent University to study the use of entertainment television to promote social change in Nepal.

2007: Awarded \$8,505 from Regent University to study and teach the use of entertainment-education for social change at the Netherlands Entertainment-Education Foundation in the spring and summer of 2008.

- 2004: Awarded \$7,600 from Regent University to study role of the religious organizations internationally in promoting HIV/AIDS prevention.
- 2003: Awarded \$2,564 from Regent University to study the use of new communication technology by churches internationally.
- 2002: Awarded \$258,000 from the Department of Defense to produce and study the effects of an HIV/AIDS prevention film in Kenya for the Kenyan military.
- 2002: Awarded a \$13,800 supplemental grant from the U.S. Department of Defense to complete editing and distribution of *Ukimwi: Adui Aliyejificha*, an HIV/AIDS prevention film.
- 2002: Awarded \$14,850 from the Department of Defense to produce a Sawahili version of “*AIDS: The Hidden Enemy*,” an HIV/AIDS prevention film for the Tanzanian Military.
- 2002: Awarded a \$700,000 grant with three other faculty members from the Newington-Cropsey Foundation in New York to produce and study the effects of an entertainment-education film to increase awareness of the role of divine inspiration in artistic creativity.
- 2001: Awarded \$109,940 from the Department of Defense to produce and study the effects of *AIDS: The Hidden Enemy*, an HIV/AIDS prevention film for the Tanzanian Military.
- 2000: Received a \$1,600 grant from Regent University with Tim Wright to study the effects of live theater on changing spiritual values, beliefs and behavior.
- 1996: Awarded \$2,500 from Regent University to develop a multimedia script for CD-ROM development and for teaching CD-ROM scriptwriting in cinema-television-theatre program.
- 1993: Awarded \$2,500 from Regent University and \$2,500 from CBN, Inc. to study the diffusion of the animated television series “Superbook” in Eastern Europe and the former Soviet Union.
- 1992: Awarded a \$375.00 grant from the Center for Arts & Humanities to analyze the effects of Magic Johnson's AIDS prevention messages on the attitudes, beliefs, and behaviors of young-adult heterosexuals.
- 1990: Awarded a \$500.00 grant from the Spark M. Matsunaga Institute of Peace for the study of the media's coverage of the Persian Gulf War.
- 1989: Awarded a \$3,100.00 research grant from the University of Hawaii's Research Council to conduct research on the effects of cultural training programs on Hawaii's hotel industry.

1987: Awarded a \$29,925.00 research grant by the Rockefeller Foundation with two other faculty members and another doctoral student at the University of Southern California to study the effects of a television program in India.

INTERNATIONAL TEACHING EXPERIENCE

International Media Ministries workshop in Madrid, Spain, *Using Entertainment Media and Indirect Communication for Ministry and Social Change*, July 2018.

Regent University's C.S. Lewis and Communication course at Oxford University, United Kingdom, June 2018.

Regent University's C.S. Lewis and Communication course at Oxford University, United Kingdom, June 2017.

Visiting Professor, Lumina College, Hong Kong, gave seminar on Entertainment-education as a Strategy for Social Change, June 6, 2016.

Regent University's C.S. Lewis and Communication course at Oxford University, United Kingdom, June 2016.

Visiting Professor, Beit El Wadi, Egypt, Regent University's Transformational Media Project Leadership Summit, July 2015.

Regent University's C.S. Lewis and Communication course at Oxford University, United Kingdom, June 2015.

Visiting Professor, Ajloun, Jordan, Regent University's Transformational Media Lecture Series, July 2014.

Regent University's C.S. Lewis and Communication course at Oxford University, United Kingdom, June 2014.

Visiting Professor, KDEC, Cairo, Egypt, Regent University's Transformational Media Lecture Series, January 2014.

Visiting Professor, Ludwig Maximilian University of Munich, Guest lectures on Celebrity Influence on Political Campaigns and on Celebrity Research. December 2013.

Visiting Professor, Regent University's Transformational Media Workshop at the Continental Theological Seminary, Brussels, Belgium, July 2013.

Regent University's C.S. Lewis and Communication course at Oxford University, United Kingdom, June 2013.

Visiting lecturer to Longido Community Integrated Programs, Arusha, Tanzania,
July 2012.

Regent University's C.S. Lewis and Communication course at Oxford University,
United Kingdom, June 2012.

Visiting Fulbright Specialist to Volda University, Volda, Norway, October 2011.

Regent University's C.S. Lewis and Communication course at Oxford University,
United Kingdom, June 2011.

Visiting Fulbright Senior Specialist to the Centre for Media & Health in Gouda, the Netherlands,
April-May, 2009

Regent University's C.S. Lewis and Communication course at Oxford University,
United Kingdom, June 2009.

Regent University's C.S. Lewis and Communication course at Oxford University,
United Kingdom, July 2008.

Visiting scholar to the Netherlands Entertainment-Education Foundation in Gouda,
the Netherlands, March-July, 2008.

Regent University's C.S. Lewis and Communication course at Oxford University,
United Kingdom, July 2007.

Visiting lecturer to Longido Community Integrated Programs, Arusha, Tanzania,
July 2006.

Regent University's C.S. Lewis and Communication course at Oxford University,
United Kingdom, July 2006.

Visiting lecturer to Longido Community Integrated Programs, Arusha, Tanzania,
July 2005.

Regent University's C.S. Lewis and Communication course at Oxford University,
United Kingdom, July 2005.

Visiting lecturer to Vanguard Ministries Leadership Training Program, Democratic Republic of
Congo, July 2003.

Visiting lecturer to Bangkok University in Bangkok, Thailand, April 1995.

Resident of Hong Kong Island, Hong Kong, 1981-1985, staff and ministry leader for Youth With A Mission.

Resident of Cambridge, Ontario, Canada, 1980-1981, staff and ministry leader for Youth With A Mission.

Resident of Saipan, Central Marianas Islands, Micronesia, 1978-1979, staff and ministry leader for Youth With A Mission.

Guest Speaker: Universities and organizations in the nations of Japan, Korea, Hong Kong, Taiwan, the Philippines, Malaysia, Singapore, Indonesia, Thailand, Burma, West Germany, South Africa, Canada, Belgium, Jordan, Egypt and the United States, 1979-2017.

Academic Conference Speaker: Australia, Canada, Costa Rica, Hong Kong, Japan, Ireland, Israel, the Netherlands, Spain, Japan, South Africa, Canada and the United States.

Non-academic Conference Speaker: The Netherlands, Romania, the Philippines, Hong Kong, Singapore, Thailand, South Africa, the Democratic Republic of Congo, Tanzania and the United States.

CONSULTING, TRAINING AND ORGANIZATIONAL DEVELOPMENT

American Institute of Banking
Ameron Corporation, Honolulu, Hawaii
Baby Slings Hawaii, Honolulu, Hawaii
Bank of Hawaii
Beauty Pageants International, Honolulu, Hawaii
Belhaven College
Bituminals, Incorporated
Brewer's Yeast Company
CAM-MAC Originals, San Jose, CA
Christian Broadcasting Network
Dole Pineapple Company
Hawaiian Electric Company
Hawaii's Department of Labor and Industrial Relations
Hawaii's Department of Health
Hope of Freedom Foundation, Bangkok, Thailand
Maui Community College
Medical University of South Carolina
Newington-Cropsey Foundation
Operation Blessing
Pacific Asian & Christian University
Palm Beach Atlantic University

Parroco Production Group, Inc.
Regent University
Shirokiya, Inc.
Success Media, Bangkok, Thailand
University of California Medical School, Davis, CA
University of Hawaii's College of Continuing Education and Community Service
University of the Nations, Hawaii, Hong Kong
U.S. Army Corp of Engineers
United Way Hampton Roads

RESEARCH CONSULTING AND MARKET ANALYSIS

American Bible Society
Ark Multimedia Publishing
Campus Crusade
Christian Broadcasting Network
Crossroads Community Church, Newport News
God Speaks
In Touch Ministries – Charles Stanley
American Center for Law and Justice
Shirokiya, Inc.
The Christian Film and Television Commission
First Baptist Church of Norfolk
Founders Village
Episcopal Renewal Ministries
Lutzker & Lutzker, LLC
Project Light
University of the Nations
Regent University
Operation Blessing humanitarian relief organization
The Founders Inn and Conference Center
TLN Chicago – Jerry Rose
United States Department of Defense
United Way, Hampton Roads

ACADEMIC JOURNAL REVIEWER

Communication Management Quarterly
Communication Monographs
Communication Research
Communication Theory
Health Communication
Human Communication Research
Health Education & Behavior

International Journal of Communication
International Journal of Leadership Studies
Journal of Broadcasting and Electronic Media
Journal of Communication
Journal of Health Communication
Journal of Media Psychology
South-North Cultural and Media Studies
Southern Communication Journal

BOOK REVIEWER

Sage Publications
St. Martin's Press
Lawrence Erlbaum Associates

RESEARCH PROJECT REVIEWER

Israeli Science Foundation
Netherlands Ministry of Public Health and Center for Media and Health

COMMUNITY SERVICE

Board Member, Transformational Leadership Coaching, 2013-present
Board Member, Friends for Africa Development, 2008-present
Board Member, Earth Conservancy, 2003-present
Board Member, The Man Called Jesus International, 1999-present
Board Member, Heartbridge International, 2001-2002
Vice-President, Warrington Hall Homeowners Association Transition Board, 2004-2007
President, Vice-President, Secretary, Plantation Lakes Home Owners Association, 1994-2000
Curriculum and academic program consultant, Belhaven College, April 2006
Curriculum and academic program consultant, Oxford Centre for Mission Studies, Feb. 1995

PROFESSIONAL ORGANIZATIONS AND AFFILIATIONS (past and present)

Asian Mass Communication Research and Information Centre
Association for Journalism and Mass Communication
International Communication Association (lifetime member)
National Communication Association
World Association for Christian Communication
World Communication Association

Before the
COPYRIGHT ROYALTY JUDGES
Washington, DC

<hr/>)	
<i>In re</i>)	
)	
Distribution of Satellite Royalty)	Consolidated Proceeding
Funds)	No. 14-CRB-0011-SD
<hr/>		(2010-2013)

Testimony of John S. Sanders
March 22, 2019

Testimony of John S. Sanders

My name is John S. Sanders and I am testifying on behalf of the Settling Devotional Claimants ("SDC") in this proceeding.¹ I have been requested to provide testimony regarding the appropriate methodology for measuring the relative fair market value of certain categories of television programming which are re-broadcast on satellite television systems outside of the home market areas of the television stations that broadcast the programming. In industry parlance, these are often referred to as "distant signals".

For the purposes of this analysis, "fair market value" is defined as the price in cash or cash equivalents that would convey between a willing buyer and a willing seller, both being fully informed and neither being under compulsion to buy or sell. Relative fair market value is a similar concept but is expressed as a percentage rather than a dollar amount. The purpose of this analysis is to divide reasonably the royalty pool among different program supplier groups in

¹ The Settling Devotional Claimants are comprised of the following entities: Amazing Facts, Inc., American Religious Town Hall Meeting, Inc., Catholic Communications Corporation, Christian Television Corporation, The Christian Broadcasting Network, Inc., Coral Ridge Ministries Media, Inc., Cottonwood Christian Center, Crenshaw Christian Center, Crystal Cathedral Ministries, Inc., Family Worship Center Church, Inc. (D/B/A Jimmy Swaggart Ministries), Free Chapel Worship Center, Inc., In Touch Ministries, Inc., It Is Written, Inc., John Hagee Ministries, Inc. (aka Global Evangelism Television), Joyce Meyer Ministries, Inc. (F/K/A Life In The Word, Inc.), Kerry Shook Ministries (aka Fellowship of the Woodlands), Lakewood Church (aka Joel Osteen Ministries), Living Word Christian Center, Living Church of God (International), Inc., Messianic Vision, Inc., New Psalmist Baptist Church, Philadelphia Church of God, Inc., RBC Ministries, Rhema Bible Church (aka Kenneth Hagin Ministries), Ron Phillips Ministries, St. Ann's Media, The Potter's House Of Dallas, Inc. (d/b/a T.D. Jakes Ministries), Word of God Fellowship, Inc., d/b/a Daystar Television Network, Billy Graham Evangelistic Association, and Zola Levitt Ministries.

what has been characterized by the Copyright Royalty Judges (“the Judges”) as the allocation phase.²

My testimony at this time will focus primarily on methodology. While I provide an initial share calculation for the Devotional category, any final calculation of actual shares for categories of programs will be completed based upon the availability of additional data. I reserve the right to amend, modify and supplement this testimony based upon the availability of additional information.

I. Professional Background - Work and Education History

I have been a Principal at the Washington, DC-based firm Bond & Pecaro, Inc. since 1986. Bond & Pecaro, Inc. specializes in the appraisal of communications and media assets. Prior to that, I was a manager with Frazier, Gross & Kadlec, Inc., where I worked from 1983 to 1986. Frazier, Gross & Kadlec, Inc. also specialized in the valuation of media and communications assets.

During my career, I have actively participated in the appraisal of more than 3,000 communications and media businesses. Much of my work has been focused on the television

² The distribution of programming royalties for distant signals retransmitted on cable television and satellite systems has historically been based upon a two-phase process. In Phase I, now known as the Allocation Phase, there is a different protocol for the cable and satellite claimants. The cable royalty pool is allocated to eight broad program categories: program suppliers, joint sports claimants, commercial television claimants, public television claimants, devotional claimants, Canadian claimants, music claimants, and National Public Radio. In contrast, the public television, Canadian claimants and NPR do not participate in the Satellite Proceeding. Unlike in the cable proceedings, network programming is compensable in satellite proceedings. Also, the music claimants previously resolved their claims by settlement. In Phase II, now known as the Distribution Phase, the contents of each pool are then divided among each of the constituent programming claimants. In other words, the Phase I procedure allocates the royalty pool into reasonably homogenous categories, whereas the Phase II procedure distributes the proceeds of that category based upon the programming it contains. The focus of this analysis is the 2010-2013 Satellite Royalty Allocation Phase.

Public Version

and cable industries and the appraisal of intangible assets such as syndicated and feature film television programming, customer and subscriber-based assets, advertiser relationships, and customer lists.

I graduated from Dickinson College with a B.A. Cum Laude (Honors) with a double major in International Studies and Economics. I received an M.B.A. from the Colgate Darden Graduate School of Business at the University of Virginia. I also hold the Accredited Senior Appraiser (“ASA”) designation in the specialty of business valuation from the American Society of Appraisers. Additional information on my background is provided in Appendix A.

Since 1983, I have worked on a regular basis for media companies such as Adelphia, Cable One, CBS, Comcast, Cox Communications, Fox, Nexstar, Sinclair, Time Warner and many others to perform economic and valuation analyses. These analyses are employed for a variety of purposes including, but not limited to, financial and tax reporting, mergers and acquisitions, financing, litigation support, music rights fees and fixed asset management. I have also filed testimony on behalf of the SDC in the (a) 1998-1999 Cable Royalty Distribution Proceeding (Dkt. No. 2008-1 CRB CD 1998-1999 (Phase II)); (b) 2004-2009 Cable and 1999-2009 Satellite Royalty Distribution Proceedings (Dkts No. 2012-6 CRB CD 2004 - 2009 (Phase II) and No. 2012-7 CRB CD 2000-2009; 2008-5 SD 1999-2000 (Phase II)); (c) 2000-2003 Cable Royalty Distribution Proceeding (Dkt. No. 2008-2 CD 2000-03 (Phase II) (Remand Proceeding)); and (d) 2010-2013 Cable Royalty Distribution Proceeding (Dkt. No. 2014-CRB-0010-CD 2010-2013 (Allocation Proceeding)).

II. Primary Materials Considered

In order to establish a comparative assessment methodology for the relative fair market values of programming categories, I reviewed the decision of the Judges in the Distribution of the 2004 and 2005 Cable Royalty Funds (Docket No. 2007-3 CRB 2004-2005) as well as the Distribution of the 2010-2013 Cable Royalty Funds (Docket No. 2014-CRB-0010-CD 2010-2013). I also reviewed written statements, expert reports, and related testimony prepared in connection with those matters. This material included the 2004-2005 and 2010-2013 direct and rebuttal testimonies of witnesses for the Joint Sports Claimants (“JSC”), Commercial Broadcast Television Claimants (“CTV”), Public Television Claimants (“PTV”), and Music Claimants. It also included direct and rebuttal testimony of witnesses for the Canadian Claimants, Program Suppliers represented by the Motion Picture Association of America (“MPAA”), and the Devotional Claimants. Any references to specific testimony in the 2004-2005 and 2010-2013 cases will be noted later in this document.

Additionally, I considered publicly available data regarding the economic performance of cable and satellite television companies. Specific sources, such as trade press reports and company Securities and Exchange Commission (“SEC”) 10-K reports are footnoted separately in this testimony.

I have also reviewed expert reports prepared in connection with this matter by Dr. William J. Brown, Dr. Erkan Erdem, Ms. Toby Berlin, and Dr. Daniel Rubinfeld. Additional sources are noted in this document.

III. Distant Viewing Signals in the Satellite Television Industry

Cable, telecom, and satellite companies that provide video content such as television stations, movie channels, and specialty networks are characterized as multichannel video programming distributors (“MVPDs”). For the purpose of copyright royalty distribution proceedings, cable and telecom companies, such as Comcast and Verizon, respectively, are grouped together.³ Consequently, the word “cable” will be used to refer to all terrestrial MVPDs, encompassing both cable and telecom companies. The current proceeding is limited to satellite royalties.

The product (video programming) received by consumers is almost identical, although MVPDs will compete by developing “menus” of programming that they believe will be more attractive than those of their competitors; the primary difference is the delivery system. The distant signals covered by this proceeding represent a small component of the program offerings of MVPDs to their subscribers. While between the late 1970s and the 1990s, distant signals were very useful to attract and keep cable subscribers, by the years covered in this proceeding (2010-2013), cable was a mature business with tens of millions of subscribers and hundreds of available channels. Satellite service offered by companies such as DirecTV and DISH initiated competitive commercial service in the 1990s. They grew rapidly but were also mature by the 2010-2013 time period and began to experience customer erosion due to increased competition and changing consumer preferences. Nevertheless, cable and satellite operators determined that it was still

³ The Judges resolved the cable allocation in a Final Determination issued in 2018 and published by the Librarian of Congress. Distribution of Cable Royalty Funds, Docket No. Consolidated Proceeding No. 14-CRB-0010-CD (2010-2013) (“2010-2013 Final Determination”). 84 Fed. Reg. 3552 (February 12, 2019).

beneficial to secure or maintain distant signal offerings, principally because enough subscribers deemed the programs on these channels of value, and the cable and satellite system operators were concerned that dropping signals could adversely affect the appeal of cable and satellite system services to particular groups or niches of subscribers.

In the context of distant signals, cable and satellite operators pay on a statutory-license basis for the right to “perform” the copyrighted works on an entire broadcast day of a distant over-the-air television signal. As such, while they give consideration to specific programs on a local television channel in making a decision as to whether or not to carry it on a distant signal basis, there are no transactions involving specific categories of programming, specific programs, or specific episodes.

For this reason, there is no “free market” for the purchase of rights to copyrighted programs retransmitted in distant markets. If there were, it would be a relatively simple matter to sum up the amounts paid by cable and satellite operators in individual arms-length transactions for programs received from distant signals in order to determine the relative fair market value of programming provided by particular groups of claimants.

Such an approach is not possible because transaction data regarding individual distant-signal categories and programs is not available. Therefore, it is necessary for an appraiser to develop an alternative methodology to determine the relative fair market value of devotional categories and programs carried over distant signals.

A notable requirement of the compulsory license scheme is that in order to avail themselves of the statutory license, cable and satellite operators must retransmit distant signal

programming precisely as broadcast locally, without alteration or deletion of content, including programs and commercials. The one exception to the retransmission of the broadcast signal as it is telecast locally involves WGN and its distantly retransmitted signal, WGN America (“WGNA”). WGNA is the most widely carried distant signal by both cable systems and satellite operators. However, to prevent the WGNA signal from being subject to syndication blackout requirements (contractual and FCC rules that allow a local TV station to demand that a cable company or satellite operator not retransmit -- or “black out” -- TV shows that the local station acquired on an exclusive, licensed basis), WGN’s owner, the Tribune Company, substitutes programs at the satellite uplink for which it has acquired national distribution rights. In fact, to enhance the appeal of WGNA, Tribune not only substitutes syndicated programs for which it has only Chicago-market rights, it also substitutes other programs for many of its own local newscasts.

As a result of the substitution of particular programs, the content throughout the broadcast day that the majority of cable and satellite subscribers receive when they tune to WGNA is different from the content that WGN-TV broadcasts locally in Chicago. This disparity is relevant to this proceeding, because under the compulsory licensing system, programs that are not retransmitted precisely as telecast locally are treated as non-compensable. One only needs to compare the television schedules for WGN-TV and WGNA to make that determination.

IV. Methodology for Allocation Phase

Over the course of over thirty years providing valuation assessments in connection with media and communications, I have looked at a wide range of industry criteria for assessing program valuation. For the purpose of providing testimony to assist in addressing the task of the

Judges in the instant proceeding, namely to allocate shares of compulsory royalties collected by the Copyright Office from satellite systems for the retransmission of the categories of broadcast signals on a distant basis, I based my testimony on my professional experience in valuing content and the testimony and decisions in prior proceedings before the Judges, as described above.

The 2004-2005 Cable Distribution Order

1. In the 2004-2005 decision, the Judges found that “the values of the program categories at issue among these contending claimants are most reasonably delineated by a range bounded by certain results indicated primarily by the Bortz constant sum survey, to a lesser extent by the Waldfogel regression analysis and, to a slight extent, by the Gruen constant sum survey.”⁴ While identifying possible deficiencies in all of the studies that were given weight, the Judges noted that “the Bortz study focuses on the appropriate buyer in the hypothetical market, i.e., the cable operator.”⁵
2. The allocation requested by the Devotional Claimants, the results of the studies considered, and the award made by the Judges in the 2004-2005 distribution order can be summarized as follows:

⁴ *Final Distribution Order*, In the Matter of Distribution of 2004 and 2005 Cable Royalty Funds, Docket No. 2007-3 CRB CD 2004-2005 at 7 (July 21, 2010) (2004-2005 Final Distribution Order”).

⁵ *Ibid.*, at 23.

FIGURE 1

	2004	2005
Basic Fund Amount Requested by Devotional Claimants	7.0%	7.0%
3.75% Fund Amount Requested by Devotional Claimants	7.3%	7.3%
Bortz Study	7.8%	6.6%
Waldfoegel Study	0.0%	0.0%
Gruen Study	7.4%	8.2%
Basic Fund Awarded by Judges⁶	3.5%	3.5%
3.75% Fund Awarded by Judges	3.8%	3.8%

3. In the case of the Devotional Claimants, the Judges in the 2004-2005 Proceeding departed from the Bortz study results citing two primary reasons.⁷ First, the judges cited “the matter of the amount and significance of non-compensable programming contained on WGN-A.”⁸ Second, the judges cited the Waldfoegel regression analysis, which indicated a zero value for the Devotional category in both 2004 and 2005. The Judges concluded, “While this [zero

⁶ Royalties collected from cable television systems are divided into three categories. The Basic Fee is calculated as a flat rate for small and medium-sized cable systems, whereas larger systems pay a sliding rate based upon the number of Distant Signal Equivalents (“DSEs”) they carry. A second “3.75% Fund” was added to account for the carriage of distant signals on large systems that would not have been permitted prior to a 1982 change in the distant signal carriage rules. Finally, a “syndex surcharge” is applied to account for the application of syndicated exclusivity rules. The devotional category is only eligible for the first two funds, the Basic Fund and the 3.75% Fund. After deducting a provision for the Music Claimant’s share, the Judges reduced the Devotional shares to 3.4% of the Basic Fund and 3.7% of the 3.75% Fund.

⁷ The Bortz study yielded a 95% confidence interval of 7.1% to 8.5% in 2004 and 5.8% to 7.4% in 2005. The 3.5% Basic Fund amounts awarded by the Judges to the Devotional category, representing a discount of approximately 50%, were well below the lower end of the confidence intervals.

⁸ 2004-2005 Final Distribution Order at 43.

value] is certainly not the case, at a minimum, his results suggest that the Bortz results are too high and therefore require a downward adjustment.”⁹

4. Consequently, the Judges recognized that the valuation for programming is not a purely quantitative exercise, but that qualitative factors, such as those revealed by a survey methodology, deserve weight, particularly for “niche” programming such as that offered by Devotional broadcasters.¹⁰

The 2010-2013 Cable Allocation Proceeding

5. In the 2010-2013 Cable Allocation Proceeding, the Judges again gave weight to the importance of such qualitative factors. In that decision, the Judges relied upon Professor Gregory S. Crawford, but elected to,

...deviate from the Crawford analysis based on other record evidence. Specifically, the Judges make a modest upward adjustment to Professor Crawford’s allocation for the SDC category based upon the Horowitz [survey] results, together with testimony regarding the “niche” value of devotional programming.¹¹

6. In their decision, the Judges made the following allocation (after settlement of the NPR and music claims)¹²:

⁹ Ibid., at 44.

¹⁰ The Settling Devotional Claimants objected to the large discount for a variety of reasons, including the fact that it was not applied to other similarly-situated claimants.

¹¹ 2010-2013 Final Determination at 3610-3611.

¹² Ibid, p. 3552.

FIGURE 2

	2010	2011	2012	2013
Basic Fund				
Canadian	5.0%	5.0%	5.0%	5.5%
Commercial TV	16.8%	16.8%	16.2%	15.3%
Devotional	4.0%	5.5%	5.5%	4.3%
Program Suppliers	26.5%	23.9%	21.5%	19.3%
Public TV	14.8%	18.6%	17.9%	19.5%
Sports	32.9%	30.2%	33.9%	36.1%
	100.0%	100.0%	100.0%	100.0%
3.75% Fund				
Canadian	5.9%	6.1%	6.1%	6.8%
Commercial TV	19.7%	20.6%	19.7%	19.0%
Devotional	4.7%	6.8%	6.7%	5.3%
Program Suppliers	31.1%	29.4%	26.2%	24.0%
Public TV	0.0%	0.0%	0.0%	0.0%
Sports	38.6%	37.1%	41.3%	44.9%
	100.0%	100.0%	100.0%	100.0%
Syndex Fund				
Program Suppliers	100.0%	100.0%	100.0%	100.0%
	100.0%	100.0%	100.0%	100.0%

7. The Satellite Royalty Fund is administratively distinct from the Cable Proceeding in several respects. First, there is no 3.75% Fund, nor is there a Syndex Fund. Second, there is no allocation for the Canadian and Public TV categories. Finally, there is an allocation for network programming on distant signals. Network programming is predominantly attributable to the Program Suppliers category, but there is also network programming in the Sports and Devotional categories. (By definition, network programming cannot fall into the Commercial Television category.) Additionally, the method of calculating the royalty calculation is different in the satellite statutory license. Whereas the cable royalties are based upon a formula involving minimum fees (even for systems that did not carry distant

signals) and the number of Distant Signal Equivalents (“DSEs”), the satellite protocol is simpler. Satellite companies pay a flat royalty fee per subscriber receiving a signal on a distant basis. During the period relevant to this proceeding, the per-subscriber fee for residential subscriptions increased from \$0.25 per subscriber in 2010 to \$0.27 per subscriber by 2013. For commercial subscriptions, the per-subscriber fee was twice the residential fee.

The 2010-2013 Satellite Allocation Proceeding

8. Based upon more than 30 years of experience in the valuation of media and communications assets, including television programming, and aware of the trends and evolution of the broadcast and MVPD industries during the period leading up to and through 2010-2013, I am of the opinion that the methodologies embodied in the Bortz and Horowitz Surveys, which determine the valuation assessment of decision-makers, the buyers of retransmission services, is the most rational and appropriate methodology for this allocation phase. Both of these surveys incorporated methodological improvements to the original Bortz survey that was presented in the 2004-2005 Proceeding. Because these approaches, as well as related testimony regarding the value of niche programming, were given weight in the Judges’ allocation in the 2010-2013 Cable Allocation, those surveys also serves as the best basis for an award in the Satellite Allocation, at least insofar as they, and the Judge’s decision that relied upon them, apply to the Devotional category.¹³

¹³ In contrast, consistent with my testimony in earlier matters before the Judges, the use of statistical data, and ratings prepared by Nielsen Research, in particular, is more appropriate for a distribution proceeding on the relative value of individual programs within a category, but is less useful for comparisons across program categories.

9. In order to employ the results of the 2010-2013 surveys, adjustments will be necessary to account for administrative differences regarding the exclusion of the Canadian and Public Television categories and the inclusion of network programming.

The MVPD Marketplace in 2010-2013

10. A variety of evidence demonstrates the similarity of satellite MVPDs to cable MVPDs and the enduring importance of Devotional television programming to the cable and satellite companies that compete in the MVPD marketplace.
11. Much in the same way that the customer of a grocery delivery service will be indifferent to (or unable even to discern) the delivery system (by foot, bicycle, car, or van) as long as the product arrives on time and to acceptable cost and quality standards, an MVPD customer will be indifferent to the delivery system (cable company or satellite company), as long as the product arrives on time and to acceptable cost and quality standards. A subscriber will not immediately be able to discern the delivery system when he or she turns on the television.
12. Consequently, the cable and satellite MVPD companies are grouped together and characterized as a single multichannel industry by operators and investors. As shown in the Figure 3, they are grouped together as a defined industry and have followed similar trends. The terrestrial cable component dominates the MVPD industry, comprising approximately 62% of all video subscribers, with the traditional cable component accounting for approximately 53% and the telecoms accounting for a relatively minor 9% as of 2013. The satellite (characterized as direct broadcast satellite, or “DBS”) component accounts for

approximately 38%. As a result of the advent of IP-based video platforms and changing consumer tastes, all three components have been in decline on a subscriber basis since 2010. This pressure highlights the need for satellite operators to obtain competitive programming. The value of that programming in this marketplace would not be expected to vary between the cable and satellite sectors.

FIGURE 3

MVPD Subscriber History Through 2013

	2010	2011	2012	2013
CABLE				
Basic Cable Subscribers (actual)	50,620,958	49,919,003	49,206,727	48,480,038
Basic Cable Subscriber Net Additions (actual)	-687,756	-701,956	-712,275	-726,689
Basic Cable Subscriber Growth (%)	-1.3	-1.4	-1.4	-1.5
DBS				
DBS Subscribers (actual)	35,855,592	35,726,733	35,500,366	35,298,000
DBS Net Additions (actual)	-62,209	-128,859	-226,367	-202,366
DBS Growth (%)	-0.2	-0.4	-0.6	-0.6
TELCO				
Telco TV Subscribers (actual)	8,546,788	8,219,027	8,137,161	8,057,100
Telco TV Subscriber Net Additions (actual)	-390,694	-327,761	-81,866	-80,061
Telco TV Subscriber Growth (%)	-4.4	-3.8	-1.0	-1.0
TOTAL U.S. MULTICHANNEL MARKET				
Total Multichannel Subscribers (actual)	95,046,201	93,875,051	92,848,884	91,837,221
Total Multichannel Subscriber Net Additions (actual)	-1,168,603	-1,171,150	-1,026,167	-1,011,663
Total Multichannel Subscriber Growth (%)	-1.2	-1.2	-1.1	-1.1
DBS Percent of Total	37.7%	38.1%	38.2%	38.4%

Source: S&P Global/SNL Kagan, U.S. Cable Industry: Historic and 10-Year Projections, 2019.

13. Despite the decline in subscribers, this additional competition in part drove a significant increase in the value of programming in general for satellite and cable operators. The

monthly programming expenditure for the five largest MVPDs, including DirecTV and DISH, increased from \$31.12 per subscriber in 2010 to \$38.51 in 2013, or by 24%.¹⁴ As indicated in Figure 4, although there are some variations in reporting practices, the programming costs for cable and satellite companies increased in tandem, and fell within a similar range. DirecTV is at the high end of the range, but this is attributable, to a degree, to the fact that it consolidates additional expenses related to third-party subscriber acquisition and warranty fulfillment with programming costs.

FIGURE 4

Monthly Programming Cost Per Subscriber				
	2010	2011	2012	2013
Charter	\$32.34	\$35.41	\$38.39	\$41.91
Comcast	26.68	29.00	30.39	33.42
Time Warner Cable	27.77	29.56	32.28	34.94
DirecTV	37.70	41.07	44.80	48.00
DISH Network	<u>31.13</u>	<u>32.01</u>	<u>34.27</u>	<u>34.27</u>
Average	\$31.12	\$33.41	\$36.03	\$38.51

14. Because they operate in the same marketplace, satellite companies and other MVPDs value programming similarly. As an additional concrete example of a way in which market per-subscriber rates for cable retransmissions tend to be replicated in satellite retransmissions, it is common for retransmission consent agreements between satellite companies and over-

¹⁴ S&P Global Market Intelligence, *Multichannel Trends*, "Programming Expenses up 27% since 2008, to grow at 7% CAGR in next 6 years," April 15, 2013. S&P Global Market Intelligence, *Multichannel Trends*, "Programming cost increases decelerate in 2014, but steep hikes lie around the corner," March 11, 2015. Company SEC 10-K filings, 2010-2013. Bond & Pecaro, Inc. calculations. DirecTV programming costs not directly comparable as they also include fees paid to third parties for active subscribers and warranty service costs. DISH programming costs are estimated.

the-air television broadcasters to include what are known in the industry as “Most Favored Nation” (or “MFN”) provisions. These stipulate that the satellite competitor in a particular market will acquire retransmission rights on terms that are no less favorable than competing terrestrial companies in terms of contract variables such as rates, volume discounts, rebates, commissions, and the like.¹⁵ The fact that satellite companies seek such terms and broadcasters are willing to give them shows that both the satellite companies and the broadcast station owners (who in turn acquire programs from the copyright owners) understand that the value of retransmission by satellite is so closely tied to the value of retransmission by cable that the per-subscriber rate for one is used to as a contractual benchmark for rates for the other.

15. Regarding the Devotional audience, research since 2005 has documented two related trends.

The first is the continued importance of the Devotional audience and the evangelical and born-again sector of the population that supports it.¹⁶ Second is the observation that the specific devotional segment of the population is often *undercounted* by conventional survey

¹⁵ For competitive reasons, MVPDs and broadcasters guard the contents of retransmission consent agreements closely. One example of such a contract is publicly available in a motion filed by DISH Network in connection with a judicial proceeding: *DISH Network v. WLAI-TV LLC*, No. 6:16-cv-00869-CJB-DEK, Document 60-3 (W.D. La. Jan. 10, 2019).

¹⁶ Barna research defines a “Non-Evangelical Born Again Christian” as a person who has “made a personal commitment to Jesus Christ that is still important in their life today” and believes that they will go to heaven because they have confessed their sins. An “Evangelical” possesses additional characteristics such as a responsibility to share their beliefs with others, a belief that Satan exists, and a belief that the Bible is accurate in the principles it teaches. Neither definition is dependent on church attendance. Notional Christians consider themselves to be Christians but have not made a religious commitment to the same degree as a non-evangelical born again Christian. Evangelical, non-evangelical born again, and notional Christians who make up the core of the devotional television audience comprise 7%, 24%, and 43% of the electorate, respectively. Barna Research, *Notional Christians: The Big Election Story of 2016*, Research Releases in Culture and Media, December 1, 2016.

techniques.¹⁷ Audience measurement data that is available demonstrates the continuing strength of the Devotional television audience.¹⁸

16. As determined by Nielsen Scarborough and indicated below, during the time period covered by these proceedings, the proportion of the American population that “typically watches” religious programming was relatively stable in the 24 to 25 million range in the 2010-2012 period before growing in 2013 to over 28 million. As a percentage of the total adult population, those who self-identify as “typically watching” religious programming was in the 10% to 12% range during this time period.

FIGURE 5

	Spring 2010	Autumn 2010	Spring 2011	Autumn 2011	Spring 2012	Autumn 2012	Spring 2013	Autumn 2013
Base Total Population 18+ (Millions) ¹⁹	232.96	233.84	235.02	236.2	236.61	237.02	238.56	240.09
Number of Viewers who Typically Watch Religious Programming (Millions)	25.32	25.06	24.7	24.47	23.72	24.41	26.67	28.32
Percent of Population Typically Watching Religious Programming	10.9%	10.7%	10.5%	10.4%	10.0%	10.3%	11.2%	11.8%

This data falls within the range of results for another study by Lifeway Research which found that, in 2014, Christian-based television was watched “frequently” by 8% of Americans and “sometimes” by another 24%, for a total of 32%.²⁰

¹⁷ Although they comprise only 7% of voters, Evangelicals had the highest turnout of any faith segment in the 2016 election (61%). This margin of 4.3% (7% times 61%) was missed in polling, but its impact is widely credited with helping to determine the result of the 2016 Presidential election. *Ibid.* See also, Kenneth P. Vogel and Alex Izenstadt, ‘How did everyone get it so wrong? Polls and predictive models failed to predict Trump’s strength,’ *Politico*, November 9, 2016.

¹⁸ Nielsen Scarborough, Scarborough USA+, September 2016, Accessed via Statista.com, December 8, 2016.

¹⁹ *Ibid.*

²⁰ Cathy Lynn Grossman, “Who’s watching all that Christian media? Christians, but not many others,”

17. As such, it is clearly warranted to give continued weight in the 2010-2013 Satellite Proceedings to the 2004-2005 Cable and 2010-2013 Cable testimony of Dr. Brown, and his additional testimony in this proceeding. In my experience in the valuation of media businesses and intangible assets, it is important to weigh qualitative data such as that included in Dr. Brown's testimony, as well as statistical analyses such as those that lay at the core of the 2004-2005 and 2010-2013 Cable Proceedings.²¹ I have reviewed Dr. Brown's testimony in this 2010-2013 Satellite Proceeding. Like Dr. Brown, I conclude that a methodology consistent with that employed by Bortz and Horowitz is the most appropriate methodology in a Satellite Allocation Proceeding and that the positive attributes of the Devotional audience make devotional programming uniquely valuable for the operators of cable television systems.

18. Because satellite service is most prevalent in rural areas that are characterized by relatively large religious populations, Devotional programming becomes more important for satellite operators than cable companies. This observation is clear from data that Nielsen accumulates in each DMA²² regarding the proportion of cable households, Alternative Delivery System (ADS) households,²³ and those that only receive their television service over-

²¹ Religion News Service, February 25, 2015, www.religionnews.com, accessed December 7, 2016. The analysis contained in Dr. Brown's 2004-2005 testimony proved to be remarkably accurate and prescient. The seven factors he described affecting the "avidity and loyalty" of the devotional audience (increased sex and violence in television programming, desire for moral and spiritual television content, hostility of intellectual elite toward religious faith, distrust of news media, desire for political awareness, technology growth and competition, threat of radical Islam and the wars in Afghanistan and Iraq, and demographic changes in the United States) were primary themes in the 2016 election and were in some cases adopted word-for-word in the campaigns of conservative candidates courting the devotional vote.

²² A Designated Market Area ("DMA") is a Nielsen-defined market area defined by television viewing. There are 210 DMAs which include virtually every county in the United States.

²³ Alternate delivery systems ("ADS") includes satellite and single master antenna television ("SMATV"),

the-air via antenna. Appendices B, C, D, and E (attached hereto), rank DMA's by ADS penetration based upon Nielsen's *Viewers in Profile* reports.²⁴ It is noteworthy that the highest ADS levels generally correspond to "Bible Belt" markets such as Shreveport, Louisiana; Meridian, Mississippi; and Roanoke, Virginia. In contrast, the lowest levels generally correspond to metropolitan markets like New York and Boston where evangelical Christianity is not nearly as dominant.

V. Conclusions

Based upon the foregoing, it is my opinion that a constant sum survey of cable operators such as those prepared by Bortz and Horowitz are the most appropriate methodology for the Allocation phase of a Satellite Proceeding. Although the small number of satellite systems does not facilitate a satellite survey, the results from the 2010-2013 cable surveys serve as the best available surrogate.²⁵ As discussed above, cable and satellite companies compete in the same marketplace and, as a consequence, compete for and value programming in a similar manner. I would place principal reliance on the cable operator surveys because, as the Judges concluded

which includes multiple dwelling units that receive service through a single satellite dish.

²⁴ During this time, Congress was also promoting initiatives to encourage satellite companies to serve "underserved markets", providing an additional impetus to provide programming attractive to audiences in those areas. See, *Satellite Television Extension of Localism Act of 2010 ("STELA")*.

²⁵ I also note that the 2010-2013 Cable Royalty Distribution Proceeding (Allocation Phase) was cited by Joint Sports Claimants, Devotional Claimants, Commercial TV Claimants and Music Claimants, as reason to defer the 2010-2013 Satellite Royalty Distribution Proceeding (Allocation Phase). As stated in the "Joint Notice of Controversy," filed in this proceeding on March 7, 2016 at 3, "Every satellite allocation proceeding since 1988 – when Congress first enacted the satellite compulsory license – has been resolved based on the decision of the Judges (or their predecessors) allocating the corresponding cable royalties." Clearly, up until the current case, all satellite royalty claimants relied to a material degree on the evidence in and result of the related cable proceeding to reach a negotiated resolution for the satellite allocations. With that history as prologue, relying on the Judges' evaluation of evidence in the 2010-2013 Cable Proceeding makes eminent sense.

about the Program Suppliers' rating methodology in the 2010-2013 Cable Allocation Proceeding, and other Devotional Claimant expert witnesses explain in the SDC Direct Case, a Crawford regression analysis is not tenable.

Moreover, the same industry developments that have enhanced the importance of the Devotional programming category to cable companies have had an impact on the satellite providers. Foremost is the endurance and vitality of the size, influence, and attractiveness of the demographic groups that comprise the Devotional audience and the attendant strength in the viewing of religious television programming. Increasingly competitive conditions in the subscription television industry, in which cable and satellite companies compete for subscribers, have increased the imperative for satellite operators to offer programming that appeals to niche audiences like the Devotional category, with a corresponding impact on the value of that genre of programming.

Consequently, a fair distribution in the 2010-2013 Satellite Allocation Proceeding can be based upon the Bortz and Horowitz survey results, as adjusted in the Judges' 2010-2013 Cable Allocation decision. The percentages simply need to be re-distributed pro-rata to the remaining claimants after subtracting the Canadian and Public Television claimants that are not parties to the Satellite Allocation Proceeding and making any additional adjustment to reflect the addition of network programming in the Satellite Proceeding. Such an adjustment should come principally out of the Commercial Television share, because although there is some Sports and Devotional content in network programming, there is no Commercial Television content in network programming.

To establish an initial range of reasonableness for the 2010-2013 Satellite Proceeding, I first compiled a summary of the 2010-2013 results for the two surveys that were submitted in connection with the 2010-2013 Cable Proceeding.²⁶

Next, I deleted the shares attributable to the Canadian and Public Television claimants, which are not subject to the Satellite Proceeding, and the Other Sports Category, which the Judges did not credit to Program Suppliers, but allocated pro rata among the other claimants. This had the impact of changing the sum of the shares as a result of the deletion of the Canadian and Public Television claimants.

Finally, I recalculated the remaining shares so that all claims total to 100% each year. These calculations yielded results that are virtually identical to those calculated in the testimony of Erkan Erdem, which was submitted in this matter. As a consequence, the following represents a fair allocation of relative value.

	2010	2011	2012	2013	Average
Bortz²⁷					
Commercial TV	19.58%	19.24%	24.18%	24.51%	21.88%
Devotional Programs	4.19%	4.73%	5.09%	5.40%	4.85%
Program Suppliers	33.40%	37.85%	30.54%	29.48%	32.82%
Sports	<u>42.83%</u>	<u>38.27%</u>	<u>40.19%</u>	<u>40.71%</u>	<u>40.50%</u>
Total	100.00%	100.09%	100.00%	100.10%	100.05%
Horowitz					
Commercial TV	14.47%	17.15%	20.94%	12.40%	16.24%
Devotional Programs	4.42%	7.90%	7.65%	4.52%	6.12%
Program Suppliers	43.76%	38.72%	37.44%	37.23%	39.29%
Sports	37.35%	36.23%	33.97%	45.85%	38.35%
Total	100.00%	100.00%	100.00%	100.00%	100.00%

²⁶ 2010-2013 Final Determination, op. cit., pp. 3572 and 3585. The Horowitz survey divided the Sports category into “Sports”, which includes college and professional team sports represented by the Joint Sports Claimants, and “Other Sports”, which were generally “personal best” sports such as equestrian and gymnastics competitions that were allocated by Horowitz to the Program Suppliers category. In their decision, the Judges allocated these amounts (6.77% in 2010, 10.8% in 2011, 9.02% in 2012 and 7.4% in 2013) *pro rata* to the other categories, including the Devotional Claimants.

²⁷ Totals may not add due to rounding.

These results establish a range of high and low values for each year based upon the survey methodologies. On average these range from 4.63% to 6.34% for the Devotional Claimants.

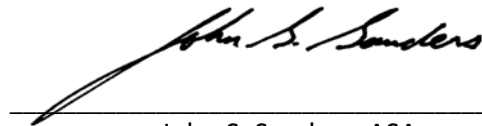
	2010	2011	2012	2013	Average
Low End of Devotional Range	4.19%	4.73%	5.09%	4.52%	4.63%
High End of Devotional Range	4.42%	7.90%	7.65%	5.40%	6.34%

I believe that the higher end of the scale for each year is appropriate as a share for Devotional Claimants, consistent with the Judges' finding in the Cable Allocation Proceeding, and the evidence in this case particularly as presented by Dr. Brown and Ms. Berlin, that devotional programming has a premium value for MVPD services based on its niche content.

DECLARATION OF JOHN S. SANDERS

I declare under penalty of perjury that the foregoing testimony is true and correct and of my personal knowledge.

Executed: March 22, 2019



John S. Sanders, ASA

Appendix A

Qualifications of John S. Sanders, ASA

PROFESSIONAL EXPERIENCE AND QUALIFICATIONS

JOHN S. SANDERS, ASA

John S. Sanders is a Principal and Founder of the firm of Bond & Pecaro, Inc., a Washington, DC-based consulting firm specializing in valuations, asset appraisals, and related financial services for the communications industry. Prior to the formation of Bond & Pecaro in 1986, Mr. Sanders was Manager, Appraisal Group, with Frazier, Gross & Kadlec, Inc. He worked for that firm in various analytical and managerial positions between 1982 and 1986.

Mr. Sanders has been actively involved in both fair market valuations and asset appraisals of over 3,000 communications, media, and related businesses. He has been qualified as an expert in valuation matters in venues including the U.S. District Court for the District of Columbia, U.S. Bankruptcy Court for the Southern District of New York, the Court of Chancery of the State of Delaware, and the American Arbitration Association.

Mr. Sanders has spoken on financial issues for the Cellular Telecommunications Association (CTIA), the Personal Communications Industry Association (PCIA), the National Association of Broadcasters (NAB), the Media Financial Management Association (MFM), the Telecom Publishing Group, and other organizations. His commentaries have also been published in the trade press, including Cellular Business, PCIA Journal, Open Channels, Broadcasting & Cable, and Communications magazines; The Financial Manager; and TVNewsCheck.com. He has been interviewed by publications including The Washington Post, The Orlando Sentinel, Communications, PCS News, Radio World, Wireless Week, Telephony, and CTFN M&A Reporting.

He is a member of the American Society of Appraisers and holds the Accredited Senior Appraiser ("ASA") designation in the specialty of business valuation. Mr. Sanders received a B.A. Cum Laude in Economics and International Studies (Honors) from Dickinson College. He also holds a Master of Business Administration degree from the University of Virginia in Charlottesville, Virginia. He serves on the Board of Directors of the Media Financial Management Association and is a member of its Audit, Editorial, and Newspaper Committees.

John S. Sanders
Speaking Engagements, Publications, and Expert Testimony
Speaking Engagements

1. Cellular Telecommunications Industry Association, "Finding the Money Tree: Sources of Cellular Financing," First Annual Convention, Washington, D.C., May 29, 1985. Speech on effective business plan preparation and financing an acquisition.
2. National Association of Broadcasters, Radio Acquisition Seminar, Chicago, Illinois, October 25, 1985. Full day panel participation focusing on market evaluation, business valuation, and acquisition strategy.
3. National Association of Broadcasters, Radio Station Acquisition Seminar, New York, New York, November 1, 1985. Full day panel participation focusing on market evaluation, business valuation, and acquisition strategy.
4. National Association of Broadcasters, Small Market Radio Acquisition Seminar, Atlanta, Georgia, February 28, 1986. Full day panel participation focusing on market evaluation, business valuation, and acquisition strategy.
5. Cellular Telecommunications Industry Association, "An Acquisitive Industry: Mergers and Acquisitions in the Cellular Industry," Winter Meeting and Exposition, Phoenix, Arizona, January 21, 1987. Panel discussion on business valuation techniques and specific value trends in telecommunications.
6. FCC Week and BOC Week Washington Seminar, "Techniques for Valuing Cellular Franchises in Rural Service Areas," Presentation at conference entitled Business Opportunities in Rural Telecommunications: The Next Frontier, Washington, D.C., May 29, 1987.
7. Harrison, Bond & Pecaro Private Briefing on Media Financial Issues, Presentation on television network affiliation agreement valuation, Watergate Hotel, Washington D.C., December 14, 1987.
8. Cellular Telecommunications Industry Association, "Strong Signals From Wall Street," 1988 Winter Meeting and Exposition, San Diego, California, January 25, 1988. Speaker on panel on how the financial community views cellular.

John S. Sanders
Speaking Engagements, Continued

9. FCC Week and BOC Week Washington Seminar, "Market Analysis in Rural Service Area Cellular Telecommunications Systems," Presentation at conference on rural telecommunications issues, Washington, D.C., March 22, 1988.
10. Broadcast Financial Management Association, "The Impact of Proposed Tax Code Changes on Broadcast and Cable Values," 28th Annual Conference, New Orleans, Louisiana, April 18, 1988.
11. Phillips Publishing, Inc. Washington Seminar, "Valuation of Mobile Telecommunications Companies," Conference on buying, selling, and investing in mobile telecommunications, Washington, D.C., June 9, 1988.
12. Cable Television Property and Sales Tax Group, "Methods of Valuation in Property Taxes," Chicago, Illinois, September 27, 1988.
13. Telocator Spring Convention, Moderator, Panel entitled "Optimizing an Acquisition: Tax & Depreciation Issues," Orlando, Florida, May 1989.
14. Telocator 41st Annual Convention & Exposition, "Tax and Financial Reporting Issues in Acquisitions," Washington, D.C., October 7, 1989.
15. Telocator Spring International Convention, Moderator, Panel entitled, "The Financial Future of Cellular Telecommunications," San Diego, California, March 23, 1991.
16. Mobile Communications North America Exposition, Moderator and Speaker, Panel entitled "Site Acquisition and Management," Toronto, Canada, April 25, 1991.
17. Mobile Communications Marketplace, Moderator and Speaker, Panel entitled "Investment Outlook for Mobile Communications," Anaheim, California, October 23, 1991.
18. The Future of Paging, Moderator and Speaker, Panel entitled "Financing for Paging Growth," Washington, D.C., April 3, 1992.
19. Mobile Communications Marketplace, Moderator and Speaker, Panel entitled "Tax Issues in the 1990s," San Francisco, California, September 24, 1992.

John S. Sanders
Speaking Engagements, Continued

20. The Future of Paging II, Moderator and Speaker, Panel entitled "Dollars and Sense: The Financial Future of Paging," Washington, D.C., June 25, 1993.
21. National Association of Broadcasters, Speaker, Panel entitled "Broadcasters and Taxation: New Benefits...and New Liabilities?" Las Vegas, Nevada, March 22, 1994.
22. Personal Communications Industry Association PCS Summit, Speaker, Panel entitled "Service Requirements for PCS: A Financial Perspective," Arlington, Virginia, June 24, 1994
23. Mobile Communications Marketplace, Speaker, Panel entitled, "Facts and Figures: Forecasting the Future of PCS," Seattle, Washington, September 22, 1994.
24. National Association of Broadcasters, Speaker, Panel Entitled "Buying and Selling Broadcast Stations in a Changing Regulatory Environment", Las Vegas, Nevada, April 12, 1995.
25. National Association of Broadcasters, Panel Entitled "Tax Reform School - The Impact of Proposed Tax Reforms of Broadcasting Station Values", Las Vegas, Nevada, April 6, 1998.
26. National Association of Broadcasters, Broadcasting Conference for the Americas, Panel Entitled "Station Valuation Techniques and Trends", Miami, Florida, August 26, 1999.
27. National Association of Broadcasters, 1999 Radio Show, Panel Entitled "Investing in Latin America", Orlando, Florida, September 1, 1999.
28. National Association of Broadcasters, Broadcasting Conference for the Americas, Panel Entitled "Buying and Selling a Station in Broadcasting", Miami, Florida, August 16, 2000.
29. National Association of Broadcasters, Broadcasting Conference for the Americas, Moderator of Panel Entitled "Investing Partners - Looking Beyond Boundaries", Miami, Florida, July 25, 2001.
30. Web Hosting Expo, Moderator of Panel Entitled "Venture Capital Looks at Web Hosting", Washington, DC, August 21, 2001.
31. National Association of Broadcasters, Presentation Entitled "Broadcasting Valuation in an International Environment", Las Vegas, Nevada, April 7, 2002.

John S. Sanders

Speaking Engagements, Continued

32. United States Telecom Association, Presentation Entitled "Telecommunications Valuation in an International Environment," Briefing to Egypt Telecom Delegation, September 23, 2002.
33. Broadcast and Cable Financial Management Association, Presentation Entitled "What's It Worth? Media and Communications Valuation Techniques and Trends in Mid-2004," Atlanta, Georgia, May 16, 2004.
32. National Association of Broadcasters, Ownership Forum, Las Vegas, Nevada, April 15, 2007.
33. National Association of Broadcasters, Ownership Forum, Las Vegas, Nevada, April 13, 2008.
34. Minority Media & Telecom Council, Financial and Procurement Forum, Washington, DC, July 21, 2009.
35. Media Financial Management Association, Moderator and Presenter on Newspaper Valuation Panel, Presentation on Public and Private Values of Newspaper Companies, Nashville, Tennessee, May 24, 2010.
36. Media Financial Management Association, Moderator and Presenter on Newspaper Valuation Panel, Presentation on Public and Private Values of Newspaper Companies, Atlanta, Georgia, May 16, 2011.
37. Media Financial Management Association, Moderator and Presenter on Newspaper-Broadcast Cross-Ownership, Presentation on Attrition of FCC-Permitted Newspaper-Television Cross-Ownership entities, Las Vegas, Nevada, May 22, 2012.
38. Media Financial Management Association, Moderator and Presenter on Newspaper Mergers, Acquisitions and Valuation Panel, Presentation on Valuation Trends and Merger Activity, Las Vegas, Nevada, May 23, 2012.
39. Media Financial Management Association, Presenter on FCC's Broadcast Incentive Auction Panel, Presentation of Spectrum Economics and Auction Strategies, New Orleans, Louisiana, May 20, 2013.

John S. Sanders
Speaking Engagements, Continued

40. Media Financial Management Association, Moderator and Presenter on Newspaper Mergers, Acquisitions and Valuation Panel, Presentation on Valuation Trends and Merger Activity, New Orleans, Louisiana, May 21, 2013.
41. Media Financial Management Association, Moderator and Presenter on Newspaper Mergers, Acquisitions and Valuation Panel, Presentation on Valuation Trends and Merger Activity, Miami, Florida, May 20, 2014.
42. Media Financial Management Association, Presenter on Economic and Functional Obsolescence in the Appraisal of Personal Property, Miami, Florida, May 20, 2014.
43. Media Financial Management Association, Moderator and Presenter on Newspaper Mergers, Acquisitions and Valuation Panel, Presentation on Valuation Trends and Merger Activity, Phoenix, Arizona, May 19, 2015.
44. Media Financial Management Association, Moderator and Presenter on Newspaper Mergers, Acquisitions and Valuation Panel, Presentation on Valuation Trends and Merger Activity, Denver, Colorado, May 23, 2016.
45. Media Financial Management Association, Moderator, Panel on Alliance for Audited Media measurement of print and digital audiences, Denver, Colorado, May 24, 2016.
46. Media Financial Management Association, Moderator, Alliance for Audited Media Panel, Discussion of measurement of print and digital media consumption, Orlando, Florida, May 22, 2017.
47. Media Financial Management Association, Moderator and Presenter on Newspaper Mergers, Acquisitions and Valuation Panel, Presentation on Valuation Trends and Merger Activity, Orlando, Florida, May 22, 2017.
48. Enterprise Wireless Alliance, Wireless Leadership Summit, Speaker, Presentation entitled "What's it Worth? Valuing Your Business," Denver, Colorado, October 12, 2017.
49. Media Financial Management Association, Moderator and Presenter on Newspaper Mergers, Acquisitions and Valuation Panel, Presentation on Valuation Trends and Merger Activity, Arlington, VA, May 22, 2018.

John S. Sanders

Speaking Engagements, Continued

50. Media Financial Management Association, Moderator, Alliance for Audited Media Panel, Discussion of measurement of print and digital media consumption, Arlington, Virginia, May 23, 2018.
51. Enterprise Wireless Alliance, Wireless Leadership Summit, Speaker, Presentation entitled, "Building Value in Enterprise Wireless Communications, " San Antonio, Texas, October 11, 2018.

John S. Sanders
Publications

1. "Cellular Financing for Smaller Players," Telocator, February, 1986.
2. "Valuing Cellular Systems: Techniques and Trends," Telocator, December, 1986.
3. "The Amortization of Intangible Assets: Overview and Current Issues," Handout at Tax Panel, Broadcast Financial Management Association, Boston, Massachusetts, April 27, 1987.
4. "Making the Most of an Acquisition," Telocator, May 1987 Telocator Convention Issue.
5. "A Tale of Two RSAs: Entrepreneurial Opportunities in RSA Cellular Markets," Cellular Business, December 1987.
6. "What's a TV Network Affiliation Worth?" Broadcasting, December 21, 1987.
7. "Cellular's Future and the Laws of Economic Power," Communications, April 1988 International Mobile Communications Expo Issue.
8. "Broadcast Fixed Asset Tax Lives Under Reconsideration," Broadcast Financial Journal, April-May 1988.
9. "Subscriber Management: The Key to Maximizing SMR System Value," SMR Newsletter, June 1990.
10. "Site Lease Management: Steps to Economic Advantage," SMR Newsletter, October 1990.
11. "Legislative and Tax Update," Open Channels, November 1991.
12. "Update on Amortization of Intangible Assets," Broadcast/Cable Financial Journal, February-March 1992.
13. "Changes in Broadcast Station Values Resulting From the 1993 Omnibus Budget Reconciliation Act," Co-authored chapter with Timothy S. Pecaro in 1993 TAX ACT - What It Means, National Association of Broadcasters, 1994.
14. "Inversión en televisión en el ámbito interamericano," TV y Video LatinoAmerica, April 2000.

John S. Sanders
Publications, Continued

15. Co-Editor, The Television Industry: Market-By-Market Review, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, and 2016 Editions. 450 page reference volume containing detailed market data and projections for over 200 television markets.
16. With Harmeet K. Dhillon, "The New Gold Rush? Wireless opportunities for colleges and universities through EBS broadcast spectrum leases", University Business, October 2007.
17. "Financial and Accounting Considerations for Acquisitions," Chapter in Understanding Broadcast and Cable Finance, Chicago: Broadcast and Cable Financial Management Association, 2008.
18. "How Stations Can Reclaim Their Value," TVNewsCheck, www.tvnewscheck.com, July 15, 2009.
19. "Kill TV-Newspaper Crossownership Rule, Now," TVNewsCheck, www.tvnewscheck.com, June 27, 2012.
20. "The Good, The Bad, and the Opportunity: The tables are turning as investors purchase newspaper properties and reposition their operations for profitability," The Financial Manager, September/October 2012.
21. "Newspapers Round a Bend," The Financial Manager, November/December 2013.
22. "Current Valuation Issues: Opportunities and Pitfalls on the Road to the Television Spectrum Auction," Bond & Pecaro, Inc., White Paper, December 2013.
23. "Compressed Press Values: Some newspaper managers fail to realize that they are valuing their printing assets inaccurately," The Financial Manager, July/August 2014.
24. "An Auction Like No Other: The World's Largest and Most Complex Auction is About to Take Place, and there are Billions of Dollars to be Gained, or Expended," The Financial Manager, November/December 2015.

John S. Sanders
Publications, Continued

25. "TV's Tech Revolution - The television business will never be the same with the advent of two major changes: the spectrum repack and the new ATSC 3.0 Standard," The Financial Manager, September/October, 2016. With Andrew D. Bolton.
26. "A Post-Auction Rainbow: While TV broadcasters' spectrum auction results were underwhelming, new market conditions may provide favorable opportunities," The Financial Manager, May/June 2017.
27. TV's Optical Illusion: At first glance, the TV business might appear sluggish. But a dive under the surface reveals currents of growth and potential opportunity," The Financial Manager, January/February 2018.
28. "Designing a New Way Forward: Newspapers around the country are finding renewed vitality through creative ownership and new organizational structures," The Financial Manager, September/October 2018.

John S. Sanders

Expert Testimony and Sponsored Exhibits

1. Radio Telephone Systems, Inc. v. Metronet, Inc., American Arbitration Association, AAA #11 119 00070 91. Testimony regarding changes in the financial condition of a radio paging business.
2. All City Communications Co. v. Industrial and Commercial Communications Services, Inc., Milwaukee County, Wisconsin Circuit Court, 91-CV-003745. Testimony regarding the value of radio paging systems.
3. Capobianchi v. Foster, U.S. District Court, District of Columbia, 89-0936 NHJ-PJA. Testimony regarding the fair market value of a cellular telephone system and related economic issues.
4. O. R. Estman, Inc. d/b/a Satellite Paging v. Tel-Air Communications, Inc., et. al., U.S. District Court, District of New Jersey, 91-5273(HCL). Testimony regarding the economics of the radio paging industry.
5. Cellular Information Systems, Inc., C.I.S. Operating Company-1, Inc., et. al., Debtors, U. S. Bankruptcy Court, Southern District of New York, Case Nos. 92 B 45024 through 92 B 45037 (BRL) (Jointly Administered). Testimony regarding the value of cellular telephone systems in five metropolitan markets and three rural service areas, and related economic issues.
6. Application of Vertical Broadcasting, Inc., Town Board, Southampton, New York, May 31, 1996. Testimony regarding the future of the communications industry and other issues related to the construction of a 360' multi-user communications tower.
7. US Mobilcom, Inc., et. al. v. Jean Warren, et. al., U.S. District Court, Western District of Oklahoma, CIV-94-1582-M. Testimony regarding the value of a nationwide 220 mHz mobile radio license and related economic issues.
8. Western States Wireless, Ltd. vs. Gerald Stevens-Kittner, U.S. District Court, Eastern District of Virginia, Civil Action No. 96-1513-A. Testimony regarding the value of applications for Instructional Television Fixed Service ("ITFS") and related economic issues.
9. CenCel, Inc., MCT Cellular, Inc. and SCC Cellular Telephone Corporation v. Contel Cellular, Inc., SS Superior Court, Hillsborough County, State of New Hampshire, Northern District Case No. 96-E-126. Testimony regarding the value of a cellular telephone system and related economic issues.

John S. Sanders

Expert Testimony and Sponsored Exhibits, Continued

10. In re: Personal Communications Services World Corporation, Debtor, United States Bankruptcy Court for the District of Nevada, Bankruptcy No. 99 BK-N-31344. Testimony regarding the value of a specialized competitive local exchange carrier and related economic issues.
11. AirTouch Paging, Inc. vs. US West Communications, Inc., United States District Court for the District of Colorado, Civil Action No. 99-WM-12. Testimony regarding valuation and related economic issues in the paging industry.
12. Interstate Cellular Holdings, Inc. vs. Radiofone, Inc., American Arbitration Association, Philadelphia, Pennsylvania, Case No. 14 Y 181 00138 00 F. Testimony regarding the value of a cellular telephone system and related economic issues.
13. In re: WebLink Wireless, Inc., Debtor, United States Bankruptcy Court for the Northern District of Texas, Dallas Division, Bankruptcy No. 01-34275-SAF-11. Testimony regarding the liquidation of value of wireless messaging and related telecommunications equipment.
14. In re: United States Cellular Operating Company, Court of Chancery of the State of Delaware in and for New Castle County, Civil Action No. 18976 NC. Testimony regarding the value of two cellular telephone systems.
15. Paul L. Kozel, et al v. Kent S. Foster and Concho Cellular Telephone Company, Inc., American Arbitration Association, AAA #16 168 00391 02 and #70 168 00390 02. Testimony regarding the value of a cellular telephone system and related economic issues.
16. WideOpenWest, LLC. Board of Assessment Appeals. Jefferson County, Colorado. Schedule# 976855. Docket# 40405. Testimony regarding the state of the broadband industry and the value of cable television, Internet, and telephony assets.
17. In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities: TRS Fund Size and Payment Formula, Federal Communications Commission, CC Docket 98-67, May 12, 2005. Comments on the appropriateness of calculations regarding the Video Relay Service ("VRS") provider reimbursement rate and related qualitative factors.

John S. Sanders

Expert Testimony and Sponsored Exhibits, Continued

18. Broadcast Music, Inc. vs. Weigel Broadcasting Co., United States District Court, Southern District of New York, No. 04 Civ. 09205 (LLS). Testimony regarding economic factors in the television industry and calculation of music rights fees.
19. Alltel Communications of Michigan RSAs, Inc. vs Cass Cellular Limited Partnership (AAA Case No 54 494 00212 10). Expert report and deposition in connection with a dispute between partners in a cellular telephone system regarding system values, revenue recognition practices, and related economic issues.
20. B&L Cellular, et. al. v. USCOC of Greater Iowa, LLC (as successor in interest), and United States Cellular Corporation, Court of Chancery for the State of Delaware, C.A No. 7628-VCL, Deposition testimony regarding the value of a cellular telephone system.
21. The Denver Post, LLC v. Adams County Board of Equalization, Docket Nos. 62566 and 62567 (Consolidated), Tax Year 2013. Testimony regarding the value of printing, distribution, and robotic delivery systems and physical, technological, and economic obsolescence.
22. In the Matter of Phase II Distribution of 1998 and 1999 Cable Royalty Funds, Docket No. 2008-1 CRB CD 98-99 (Phase II). Before the Copyright Royalty Judges, Library of Congress, Washington, DC. Testimony regarding the valuation of media assets.
23. In the Matter of Phase II Distribution of 2004-2009 Cable Royalty Funds and In the Matter of Phase II Distribution of 1999-2009 Satellite Royalty Funds, Dockets No. 2012-6 CRB CD 2004 - 2009 (Phase II) and No. 2012-7 CRB CD 2000-2009; 2008-5 SD 1999-2000 (Phase II). Before the Copyright Royalty Judges, Library of Congress, Washington, DC. Testimony regarding the valuation of media assets.
24. In the Matter of Distribution of the 2010, 2011, 2012, and 2013 Cable Royalty Funds, Docket No. 14-CRB-0010-CD (2010-13). Before the Copyright Royalty Judges, Library of Congress, Washington, DC. Testimony regarding valuation methodologies and the valuation of media assets.

Appendix B

2010 ADS Penetration Ranked by DMA

Market	July 2010 ADS Penetration (%)	July 2010 TV HHs
SHREVEPORT-TEXARKANA	59	386,180
MERIDIAN	57	72,180
COLUMBUS-TUPELO-WEST POINT	56	189,460
TYLER-LONGVIEW (LUFKIN & NACOGDOCHES)	56	267,890
PADUCAH-CAPE GIRARDEAU-HARRISBG-MT VERNON	55	399,690
ABILENE-SWEETWATER	54	116,190
CHICO-REDDING	53	197,970
COLUMBIA - JEFFERSON CITY	53	178,810
SPRINGFIELD, MO.	53	422,740
ROANOKE-LYNCHBURG	52	461,220
JACKSON, MISS.	51	336,520
LITTLE ROCK-PINE BLUFF	51	564,490
SHERMAN-ADA	51	127,990
TERRE HAUTE	50	145,550
WICHITA FALLS & LAWTON	50	154,450
YAKIMA-PASCO-RICHLAND-KENNEWICK	50	219,510
AMARILLO	48	192,490
BOISE	47	262,800
JOPLIN-PITTSBURG	47	155,670
MEDFORD-KLAMATH FALLS	47	172,900
MISSOULA	47	111,940
QUINCY-HANNIBAL-KEOKUK	47	102,710
FRESNO-VISALIA	46	579,180
GREAT FALLS	46	65,000
IDAHO FALLS-POCATELLO	46	126,880
MACON	46	239,330
MONROE-EL DORADO	46	177,200
SPOKANE	46	419,350
TWIN FALLS	46	64,740
BIRMINGHAM	45	742,140
CLARKSBURG-WESTON	45	110,050
DULUTH-SUPERIOR	45	174,360
GREENVILLE-SPARTANBURG-ASHEVILLE-ANDRSN	45	865,810
HATTIESBURG-LAUREL	45	111,610
ALBUQUERQUE-SANTA FE	44	694,040

BANGOR	44	144,230
COLORADO SPRINGS-PUEBLO	44	334,710
LEXINGTON	44	506,340
RENO	44	270,500
YUMA-EL CENTRO	44	118,300
SAN ANGELO	43	54,580
TRAVERSE CITY-CADILLAC	43	245,000
CHARLESTON-HUNTINGTON	42	501,530
MEMPHIS	42	667,660
BEAUMONT-PORT ARTHUR	41	167,330
DES MOINES-AMES	41	432,310
EVANSVILLE	41	291,830
LUBBOCK	41	158,360
SALT LAKE CITY	41	944,060
TALLAHASSEE-THOMASVILLE	41	280,710
WAUSAU-RHINELANDER	41	184,720
ALBANY, GA.	40	156,890
BUTTE-BOZEMAN	40	66,260
COLUMBIA, S.C.	40	398,620
HUNTSVILLE-DECATUR, FLORENCE	40	390,900
MOBILE-PENSACOLA	40	534,730
SAINT LOUIS	40	1,249,450
SAVANNAH	40	322,030
SOUTH BEND-ELKHART	40	336,130
BURLINGTON-PLATTSBURGH	39	330,650
DENVER	39	1,539,380
FORT SMITH	39	298,330
JOHNSTOWN-ALTOONA	39	294,350
OTTUMWA-KIRKSVILLE	39	51,370
SACRAMENTO-STOCKTON-MODESTO	39	1,404,580
ATLANTA	38	2,387,520
GREENVILLE-NEW BERN-WASHINGTON	38	290,700
MONTEREY-SALINAS	38	227,390
NASHVILLE	38	1,019,010
TUCSON (NOGALES)	38	465,100
WACO-TEMPLE-BRYAN	38	339,570
ALEXANDRIA, LA.	37	90,740
CHARLOTTESVILLE	37	75,920

DALLAS-FT. WORTH	37	2,544,410
JACKSON, TENN.	37	98,250
LINCOLN & HASTINGS-KEARNEY, PLUS	37	281,590
PRESQUE ISLE	37	31,070
TRI-CITIES, TENN.-VA.	37	334,620
TULSA	37	528,070
CHAMPAIGN & SPRINGFIELD-DECATUR	36	384,620
DOTHAN	36	101,840
FORT WAYNE	36	273,860
GREENWOOD-GREENVILLE, MS	36	70,350
HARRISONBURG	36	93,400
PHOENIX	36	1,873,930
SANTA BARBARA-SANTA MARIA-SAN LUIS OBISPO	36	241,370
BAKERSFIELD	35	222,910
BILLINGS	35	107,420
CASPER-RIVERTON	35	55,620
DAVENPORT-ROCK ISLAND-MOLINE	35	308,910
EUGENE	35	241,730
KNOXVILLE	35	552,380
LA CROSSE-EAU CLAIRE	35	214,820
LAFAYETTE, LA.	35	230,180
LANSING	35	253,690
RICHMOND-PETERSBURG	35	553,950
WILKES-BARRE-SCRANTON	35	593,480
CHARLOTTE	34	1,147,910
CHATTANOOGA	34	365,400
CHEYENNE-SCOTTSBLUFF-STERLING	34	54,710
FARGO-VALLEY CITY	34	240,330
JACKSONVILLE	34	679,120
LOS ANGELES	34	5,659,170
MADISON	34	377,260
SIOUX CITY	34	154,810
BUFFALO	33	633,220
FORT MYERS-NAPLES	33	500,110
GAINESVILLE	33	128,400
GRAND JUNCTION-MONTROSE	33	75,030
GRAND RAPIDS-KALAMAZOO-BATTLE CREEK	33	740,430
GREEN BAY-APPLETON	33	443,420

MONTGOMERY	33	244,750
RALEIGH-DURHAM	33	1,107,820
AUGUSTA	32	255,950
CEDAR RAPIDS-WATERLOO & DUBUQUE	32	346,030
ERIE	32	156,520
JONESBORO	32	82,300
MINOT-BISMARCK-DICKINSON (WILLISTON)	32	136,540
NEW ORLEANS	32	633,930
NORTH PLATTE	32	15,350
TOPEKA	32	180,090
CORPUS CHRISTI	31	199,560
EL PASO	31	310,760
GREENSBORO-HIGH POINT-WINSTON-SALEM	31	691,380
ODESSA-MIDLAND	31	143,710
PEORIA-BLOOMINGTON	31	247,830
RAPID CITY	31	98,240
ROCHESTER-MASON CITY-AUSTIN	31	144,300
ROCKFORD	31	189,160
ALPENA	30	17,420
BLUEFIELD-BECKLEY-OAK HILL	30	142,570
FLINT-SAGINAW-BAY CITY	30	458,020
HARLINGEN-WESLACO-BROWNSVILLE-MCALLEEN	30	354,150
HELENA	30	27,630
OKLAHOMA CITY	30	694,030
VICTORIA	30	31,560
CHARLESTON, S.C.	29	311,190
LAKE CHARLES	29	95,900
MIAMI-FT. LAUDERDALE	29	1,538,090
PORTLAND, ORE.	29	1,188,770
SAINT JOSEPH	29	48,440
WILMINGTON	29	189,950
CHICAGO	28	3,501,010
FLORENCE-MYRTLE BEACH	28	287,400
HOUSTON	28	2,123,460
INDIANAPOLIS	28	1,119,760
LOUISVILLE	28	668,310
PANAMA CITY	28	147,440
SAN ANTONIO	28	830,000

SIOUX FALLS (MITCHELL)	28	261,100
WEST PALM BEACH-FT. PIERCE	28	776,080
WICHITA1-HUTCHINSON, PLUS	28	452,710
BATON ROUGE	27	326,890
CINCINNATI	27	918,670
COLUMBUS, GA.	27	213,880
ELMIRA	27	95,790
LAFAYETTE, IND.	27	66,180
SAN FRANCISCO-OAKLAND-SAN JOSE	27	2,503,400
AUSTIN, TEX.	26	678,730
BEND	26	66,980
EUREKA	26	61,090
HARRISBURG-LANCASTER-LEBANON-YORK	26	743,420
LAREDO	26	69,790
LAS VEGAS	26	721,780
MARQUETTE	26	88,490
MINNEAPOLIS-ST. PAUL	26	1,732,050
TOLEDO	26	423,100
WASHINGTON, D.C.	26	2,335,040
WHEELING-STEUBENVILLE	26	133,110
BILOXI-GULFPORT	25	122,740
GLENDIVE	25	3,940
ORLANDO-DAYTONA BEACH-MELBOURNE	25	1,455,620
PORTLAND-AUBURN	25	408,120
ZANESVILLE	25	32,350
YOUNGSTOWN	24	266,560
BINGHAMTON	23	137,240
BOWLING GREEN	23	81,650
CLEVELAND	23	1,520,750
DAYTON	23	482,590
KANSAS CITY	23	941,360
NORFOLK-PORTSMOUTH-NEWPORT NEWS	23	709,880
PALM SPRINGS	23	161,110
PARKERSBURG	23	64,060
PITTSBURGH	23	1,154,950
WATERTOWN	23	93,970
LIMA	22	71,380
MANKATO	22	52,230

OMAHA	22	410,350
COLUMBUS, OHIO	21	904,030
SALISBURY	21	158,340
SEATTLE-TACOMA	21	1,833,990
ANCHORAGE	20	151,470
BALTIMORE	20	1,093,170
DETROIT	20	1,890,220
UTICA	20	104,890
ALBANY-SCHENECTADY-TROY	18	554,070
ROCHESTER, N.Y.	18	392,190
PHILADELPHIA	17	2,955,190
SYRACUSE	17	385,440
MILWAUKEE	16	901,790
TAMPA-ST. PETERSBURG, SARASOTA	16	1,805,810
HARTFORD & NEW HAVEN	14	1,010,630
SPRINGFIELD-HOLYOKE	14	262,960
BOSTON	13	2,410,180
NEW YORK	13	7,493,530
SAN DIEGO	13	1,073,390
PROVIDENCE-NEW BEDFORD	10	619,610

Appendix C

2011 ADS Penetration Ranked by DMA

Market	July 2011 ADS Penetration (%)	July 2011 TV HHs
COLUMBUS-TUPELO-WEST POINT	61	190,270
SHREVEPORT-TEXARKANA	57	387,060
CHICO-REDDING	55	198,370
MERIDIAN	55	72,280
PADUCAH-CAPE GIRARDEAU-HARRISBG-MT VERNON	55	398,820
ABILENE-SWEETWATER	54	115,200
TYLER-LONGVIEW (LUFKIN & NACOGDOCHES)	54	269,760
JACKSON, MISS.	53	338,030
COLUMBIA - JEFFERSON CITY	52	405,670
TERRE HAUTE	52	144,950
WICHITA FALLS & LAWTON	52	157,030
MONROE-EL DORADO	51	177,900
SHERMAN-ADA	51	129,480
SPRINGFIELD, MO.	51	424,270
IDAHO FALLS-POCATELLO	50	128,860
LITTLE ROCK-PINE BLUFF	50	573,670
MEDFORD-KLAMATH FALLS	50	172,230
ROANOKE-LYNCHBURG	50	464,480
AMARILLO	48	195,070
MISSOULA	48	113,380
TWIN FALLS	48	65,310
BOISE	47	262,920
FRESNO-VISALIA	47	581,340
GREENVILLE-SPARTANBURG-ASHEVILLE-ANDRSN	47	878,550
JOPLIN-PITTSBURG	47	156,360
YAKIMA-PASCO-RICHLAND-KENNEWICK	47	225,320
YUMA-EL CENTRO	47	118,700
ALBUQUERQUE-SANTA FE	46	703,720
BIRMINGHAM	46	747,190
MACON	46	241,120
QUINCY-HANNIBAL-KEOKUK	46	102,010
ALBANY, GA.	45	156,910
BANGOR	45	144,130

CLARKSBURG-WESTON	45	110,440
DULUTH-SUPERIOR	45	174,570
RENO	45	271,380
SPOKANE	45	424,220
BEAUMONT-PORT ARTHUR	44	170,010
COLORADO SPRINGS-PUEBLO	44	336,880
HATTIESBURG-LAUREL	44	112,120
LEXINGTON	44	515,320
CHARLESTON-HUNTINGTON	42	505,200
TRAVERSE CITY-CADILLAC	42	242,700
DENVER	41	1,572,740
GREAT FALLS	41	65,900
MEMPHIS	41	693,860
MONTEREY-SALINAS	41	229,150
PHOENIX	41	1,881,310
SACRAMENTO-STOCKTON-MODESTO	41	1,409,400
TUCSON (NOGALES)	41	461,450
ALEXANDRIA, LA.	40	90,640
BURLINGTON-PLATTSBURGH	40	330,730
BUTTE-BOZEMAN	40	65,780
COLUMBIA, S.C.	40	178,610
DOTHAN	40	110,080
EVANSVILLE	40	292,440
LINCOLN & HASTINGS-KEARNEY, PLUS	40	279,820
LUBBOCK	40	161,450
MOBILE-PENSACOLA	40	539,190
OTTUMWA-KIRKSVILLE	40	51,370
SAINT LOUIS	40	1,258,580
SALT LAKE CITY	40	953,950
FORT SMITH	39	304,060
GREENVILLE-NEW BERN-WASHINGTON	39	294,550
SOUTH BEND-ELKHART	39	336,220
TRI-CITIES, TENN.-VA.	39	337,610
TULSA	39	535,820
WAUSAU-RHINELANDER	39	186,010
ATLANTA	38	2,047,080

DES MOINES-AMES	38	432,820
JOHNSTOWN-ALTOONA	38	293,940
SAN ANGELO	38	55,280
SAVANNAH	38	329,460
TALLAHASSEE-THOMASVILLE	38	282,110
WACO-TEMPLE-BRYAN	38	344,020
CHARLOTTE	37	1,166,180
HUNTSVILLE-DECATUR, FLORENCE	37	399,440
LOS ANGELES	37	5,666,900
PRESQUE ISLE	37	30,380
RALEIGH-DURHAM	37	1,131,310
AUGUSTA	36	257,030
BAKERSFIELD	36	225,670
CHARLOTTESVILLE	36	76,700
EUGENE	36	243,870
FARGO-VALLEY CITY	36	241,990
GREENWOOD-GREENVILLE, MS	36	69,450
NASHVILLE	36	1,039,430
NEW ORLEANS	36	635,860
ODESSA-MIDLAND	36	146,310
SANTA BARBARA-SANTA MARIA-SAN LUIS OBISPO	36	239,250
BILLINGS	35	109,090
BLUEFIELD-BECKLEY-OAK HILL	35	143,280
CHAMPAIGN & SPRINGFIELD-DECATUR	35	384,990
CORPUS CHRISTI	35	199,370
DALLAS-FT. WORTH	35	2,594,630
GREENSBORO-HIGH POINT-WINSTON-SALEM	35	699,040
JACKSONVILLE	35	678,430
KNOXVILLE	35	557,040
LAFAYETTE, LA.	35	231,560
LANSING	35	253,380
CHATTANOOGA	34	376,910
DAVENPORT-ROCK ISLAND-MOLINE	34	309,800
FORT WAYNE	34	277,050
GAINESVILLE	34	130,460
JACKSON, TENN.	34	77,700

JONESBORO	34	83,000
RICHMOND-PETERSBURG	34	558,500
SIOUX CITY	34	155,490
ERIE	33	158,000
FORT MYERS-NAPLES	33	499,410
HARLINGEN-WESLACO-BROWNSVILLE-MCALLEEN	33	356,010
HARRISONBURG	33	94,670
MADISON	33	382,700
MONTGOMERY	33	244,470
VICTORIA	33	31,660
ALPENA	32	17,040
CASPER-RIVERTON	32	56,700
EL PASO	32	315,130
GRAND JUNCTION-MONTROSE	32	76,320
LA CROSSE-EAU CLAIRE	32	216,510
LAS VEGAS	32	718,030
MINOT-BISMARCK-DICKINSON (WILLISTON)	32	138,730
PEORIA-BLOOMINGTON	32	251,880
SAINT JOSEPH	32	48,040
WILKES-BARRE-SCRANTON	32	595,480
CEDAR RAPIDS-WATERLOO & DUBUQUE	31	346,010
CHEYENNE-SCOTTSBLUFF-STERLING	31	55,210
GRAND RAPIDS-KALAMAZOO-BATTLE CREEK	31	740,230
LAKE CHARLES	31	96,210
OKLAHOMA CITY	31	704,670
PORTLAND, ORE.	31	1,197,780
ROCHESTER-MASON CITY-AUSTIN	31	144,590
ROCKFORD	31	187,970
SAN ANTONIO	31	844,910
TOPEKA	31	179,510
WILMINGTON	31	191,630
BUFFALO	30	636,320
COLUMBUS, GA.	30	219,450
FLINT-SAGINAW-BAY CITY	30	455,840
GREEN BAY-APPLETON	30	445,510
HELENA	30	28,030

LAREDO	30	70,090
NORTH PLATTE	30	15,350
PANAMA CITY	30	139,700
CHARLESTON, S.C.	29	312,770
CHICAGO	29	3,502,610
CINCINNATI	29	923,830
HONOLULU	29	2,177,220
HOUSTON	29	2,177,220
LOUISVILLE	29	674,940
MARQUETTE	29	87,670
SAN FRANCISCO-OAKLAND-SAN JOSE	29	2,523,520
BILOXI-GULFPORT	28	126,610
EUREKA	28	61,570
INDIANAPOLIS	28	1,106,420
MINNEAPOLIS-ST. PAUL	28	1,753,780
RAPID CITY	28	97,930
WICHITA1-HUTCHINSON, PLUS	28	457,880
AUSTIN, TEX.	27	707,430
GLENDIVE	27	4,040
LAFAYETTE, IND.	27	67,560
ORLANDO-DAYTONA BEACH-MELBOURNE	27	1,453,120
SIOUX FALLS (MITCHELL)	27	263,790
ELMIRA	26	96,390
KANSAS CITY	26	974,820
MANKATO	26	52,640
MIAMI-FT. LAUDERDALE	26	1,580,580
WEST PALM BEACH-FT. PIERCE	26	773,890
YOUNGSTOWN	26	268,150
BATON ROUGE	25	334,730
CLEVELAND	25	1,526,200
DAYTON	25	527,030
HARRISBURG-LANCASTER-LEBANON-YORK	25	749,020
TOLEDO	25	445,600
WATERTOWN	25	95,750
WHEELING-STEUBENVILLE	25	132,910
ZANESVILLE	25	32,550

BEND	24	66,680
NORFOLK-PORTSMOUTH-NEWPORT NEWS	24	716,050
PITTSBURGH	24	1,160,820
WASHINGTON, D.C.	24	2,389,710
PALM SPRINGS	23	157,180
PARKERSBURG	23	64,370
PORTLAND-AUBURN	23	410,300
ANCHORAGE	22	154,820
COLUMBUS, OHIO	22	915,950
DETROIT	22	1,883,840
BALTIMORE	21	1,108,360
BOWLING GREEN	21	81,750
LIMA	21	40,020
OMAHA	21	418,290
SEATTLE-TACOMA	21	1,874,750
BINGHAMTON	20	136,740
SALISBURY	20	159,630
MILWAUKEE	19	901,100
ROCHESTER, N.Y.	19	392,090
ALBANY-SCHENECTADY-TROY	17	557,860
UTICA	17	104,990
HARTFORD & NEW HAVEN	16	1,018,770
PHILADELPHIA	16	3,015,820
SYRACUSE	16	389,970
SAN DIEGO	15	1,089,010
SPRINGFIELD-HOLYOKE	15	269,500
NEW YORK	14	7,515,330
TAMPA-ST. PETERSBURG, SARASOTA	14	1,795,200
BOSTON	13	2,460,290
PROVIDENCE-NEW BEDFORD	9	620,600

Appendix D

2012 ADS Penetration Ranked by DMA

Market	July 2012 ADS Penetration (%)	July 2012 TV HHs
SHREVEPORT-TEXARKANA	59	386,150
PADUCAH-CAPE GIRARDEAU-HARRISBG-MT VERNON	57	393,330
SPRINGFIELD, MO.	57	423,010
COLUMBIA - JEFFERSON CITY	56	176,470
COLUMBUS-TUPELO-WEST POINT	56	189,910
MERIDIAN	56	70,190
CHICO-REDDING	55	194,590
ABILENE-SWEETWATER	54	115,630
SHERMAN-ADA	53	128,790
JACKSON, MISS.	52	334,530
ROANOKE-LYNCHBURG	52	455,860
TYLER-LONGVIEW (LUFKIN & NACOGDOCHES)	52	271,400
WICHITA FALLS & LAWTON	52	160,540
LITTLE ROCK-PINE BLUFF	51	571,630
MEDFORD-KLAMATH FALLS	51	170,670
MISSOULA	50	114,590
QUINCY-HANNIBAL-KEOKUK	50	104,790
TERRE HAUTE	50	142,780
TWIN FALLS	50	65,800
BOISE	49	261,810
FRESNO-VISALIA	49	574,800
IDAHO FALLS-POCATELLO	49	128,940
MONROE-EL DORADO	49	177,410
SPOKANE	49	426,690
BANGOR	48	141,580
COLORADO SPRINGS-PUEBLO	48	343,160
GREENVILLE-SPARTANBURG-ASHEVILLE-ANDRSN	48	860,930
JOPLIN-PITTSBURG	48	153,910
ALBUQUERQUE-SANTA FE	47	710,050
AMARILLO	47	195,650
GREAT FALLS	47	66,190
YAKIMA-PASCO-RICHLAND-KENNEWICK	47	230,010
YUMA-EL CENTRO	47	112,850

HATTIESBURG-LAUREL	46	111,560
MACON	46	245,910
ALBANY, GA.	45	151,620
BEAUMONT-PORT ARTHUR	45	168,420
BIRMINGHAM	45	738,790
CLARKSBURG-WESTON	45	108,980
TALLAHASSEE-THOMASVILLE	45	272,520
DULUTH-SUPERIOR	44	173,710
LEXINGTON	44	488,850
RENO	44	271,020
TRAVERSE CITY-CADILLAC	44	244,050
CHARLESTON-HUNTINGTON	43	465,030
DES MOINES-AMES	43	431,300
HUNTSVILLE-DECATUR, FLORENCE	43	394,010
PHOENIX	43	1,811,330
ALEXANDRIA, LA.	42	90,160
BUTTE-BOZEMAN	42	66,910
JOHNSTOWN-ALTOONA	42	294,770
OTTUMWA-KIRKSVILLE	42	47,810
SACRAMENTO-STOCKTON-MODESTO	42	1,388,570
SALT LAKE CITY	42	927,540
WAUSAU-RHINELANDER	42	181,280
BURLINGTON-PLATTSBURGH	41	323,750
DENVER	41	1,548,570
EVANSVILLE	41	287,880
LINCOLN & HASTINGS-KEARNEY, PLUS	41	280,310
SAVANNAH	41	335,080
SOUTH BEND-ELKHART	41	322,090
TUCSON (NOGALES)	41	442,020
MONTEREY-SALINAS	40	223,620
SAN ANGELO	40	55,570
SANTA BARBARA-SANTA MARIA-SAN LUIS OBISPO	40	230,830
WACO-TEMPLE-BRYAN	40	353,190
BILLINGS	39	109,940
COLUMBIA, S.C.	39	404,830
DAVENPORT-ROCK ISLAND-MOLINE	39	307,050
DOTHAN	39	109,080
FORT SMITH	39	301,120

FORT WAYNE	39	267,710
HARRISONBURG	39	91,620
LUBBOCK	39	160,160
MEMPHIS	39	669,940
MOBILE-PENSACOLA	39	527,930
NASHVILLE	39	1,024,560
SAINT LOUIS	39	1,253,920
TULSA	39	529,100
BAKERSFIELD	38	221,920
CHAMPAIGN & SPRINGFIELD-DECATUR	38	386,160
GREENWOOD-GREENVILLE, MS	38	67,730
TRI-CITIES, TENN.-VA.	38	323,640
AUGUSTA	37	262,560
BLUEFIELD-BECKLEY-OAK HILL	37	137,380
CHARLOTTE	37	1,140,900
CORPUS CHRISTI	37	203,550
EUGENE	37	241,270
GREENVILLE-NEW BERN-WASHINGTON	37	307,610
JACKSON, TENN.	37	94,650
LOS ANGELES	37	5,569,780
NEW ORLEANS	37	643,660
PEORIA-BLOOMINGTON	37	247,850
GAINESVILLE	36	124,730
GREENSBORO-HIGH POINT-WINSTON-SALEM	36	691,200
JONESBORO	36	81,300
LAFAYETTE, LA.	36	229,320
MADISON	36	378,290
NORTH PLATTE	36	15,180
SIOUX CITY	36	157,060
WILKES-BARRE-SCRANTON	36	590,740
ALPENA	35	17,100
ATLANTA	35	2,292,640
CEDAR RAPIDS-WATERLOO & DUBUQUE	35	344,150
CHARLOTTESVILLE	35	74,630
CHEYENNE-SCOTTSBLUFF-STERLING	35	56,640
JACKSONVILLE	35	669,840
LANSING	35	252,890
CHATTANOOGA	34	366,790

EL PASO	34	336,570
FARGO-VALLEY CITY	34	246,780
KNOXVILLE	34	527,790
LA CROSSE-EAU CLAIRE	34	213,660
MARQUETTE	34	85,230
RALEIGH-DURHAM	34	1,143,420
TOPEKA	34	177,710
GREEN BAY-APPLETON	33	445,760
LAS VEGAS	33	737,300
MONTGOMERY	33	245,100
ODESSA-MIDLAND	33	146,040
PORTLAND, ORE.	33	1,190,010
RICHMOND-PETERSBURG	33	559,390
ROCHESTER-MASON CITY-AUSTIN	33	145,450
ROCKFORD	33	184,360
CASPER-RIVERTON	32	56,460
COLUMBUS, GA.	32	215,410
DALLAS-FT. WORTH	32	2,571,310
ERIE	32	157,730
FLINT-SAGINAW-BAY CITY	32	451,880
FORT MYERS-NAPLES	32	504,240
GRAND RAPIDS-KALAMAZOO-BATTLE CREEK	32	722,150
MINOT-BISMARCK-DICKINSON (WILLISTON)	32	145,480
RAPID CITY	32	100,120
SAINT JOSEPH	32	46,690
CHARLESTON, S.C.	31	311,260
GRAND JUNCTION-MONTROSE	31	72,970
HARLINGEN-WESLACO-BROWNSVILLE-MCALLEEN	31	361,820
HELENA	31	28,050
PANAMA CITY	31	132,120
WICHITA1-HUTCHINSON, PLUS	31	454,590
BUFFALO	30	645,190
LAKE CHARLES	30	94,850
VICTORIA	30	31,540
BILOXI-GULFPORT	29	128,150
CINCINNATI	29	896,090
ELMIRA	29	96,600
FLORENCE-MYRTLE BEACH	29	289,060

HOUSTON	29	2,185,260
LAFAYETTE, IND.	29	67,260
LAREDO	29	72,060
MINNEAPOLIS-ST. PAUL	29	1,721,940
OKLAHOMA CITY	29	712,630
SAN ANTONIO	29	880,690
SIOUX FALLS (MITCHELL)	29	261,530
WHEELING-STEUBENVILLE	29	133,120
ZANESVILLE	29	33,140
CHICAGO	28	3,493,480
INDIANAPOLIS	28	1,109,970
SAN FRANCISCO-OAKLAND-SAN JOSE	28	2,506,510
WILMINGTON	28	190,730
YOUNGSTOWN	28	263,850
HARRISBURG-LANCASTER-LEBANON-YORK	27	729,440
KANSAS CITY	27	939,740
LOUISVILLE	27	674,050
MANKATO	27	53,720
TOLEDO	27	426,280
AUSTIN, TEX.	26	686,830
BEND	26	62,620
DAYTON	26	493,600
GLENDIVE	26	4,180
ORLANDO-DAYTONA BEACH-MELBOURNE	26	1,465,460
PORTLAND-AUBURN	26	401,370
WATERTOWN	26	93,090
BATON ROUGE	25	333,010
BINGHAMTON	25	136,730
CLEVELAND	25	1,514,170
EUREKA	25	61,180
MIAMI-FT. LAUDERDALE	25	1,583,800
OMAHA	25	415,510
PALM SPRINGS	25	158,440
PARKERSBURG	25	63,120
NORFOLK-PORTSMOUTH-NEWPORT NEWS	24	718,750
PITTSBURGH	24	1,171,490
WEST PALM BEACH-FT. PIERCE	24	788,020
BOWLING GREEN	23	79,990

COLUMBUS, OHIO	23	932,680
DETROIT	22	1,842,650
LIMA	22	39,350
UTICA	22	104,750
WASHINGTON, D.C.	22	2,360,180
ANCHORAGE	21	155,600
BALTIMORE	21	1,097,310
MILWAUKEE	20	907,660
ROCHESTER, N.Y.	20	396,790
SALISBURY	20	159,640
SEATTLE-TACOMA	20	1,811,420
ALBANY-SCHENECTADY-TROY	19	551,120
SYRACUSE	18	386,090
SAN DIEGO	16	1,077,600
SPRINGFIELD-HOLYOKE	16	257,080
HARTFORD & NEW HAVEN	15	1,006,280
PHILADELPHIA	15	2,993,370
TAMPA-ST. PETERSBURG, SARASOTA	15	1,788,240
BOSTON	14	2,379,690
NEW YORK	12	7,387,810
PROVIDENCE-NEW BEDFORD	8	620,010

Appendix E

2013 ADS Penetration Ranked by DMA

Market	July 2013 ADS Penetration (%)	July 2013 TV HHs
COLUMBUS-TUPELO-WEST POINT	62	184,990
SHREVEPORT-TEXARKANA	61	384,410
MERIDIAN	60	68,860
PADUCAH-CAPE GIRARDEAU-HARRISBG-MT VERNON	59	388,340
SHERMAN-ADA	58	126,930
ABILENE-SWEETWATER	56	114,080
CHICO-REDDING	56	191,500
SPRINGFIELD, MO.	56	414,570
COLUMBIA - JEFFERSON CITY	55	173,640
TYLER-LONGVIEW (LUFKIN & NACOGDOCHES)	54	268,150
ROANOKE-LYNCHBURG	53	445,470
WICHITA FALLS & LAWTON	53	158,500
BOISE	52	259,090
JACKSON, MISS.	52	331,500
LITTLE ROCK-PINE BLUFF	52	561,760
TERRE HAUTE	52	139,600
ALBANY, GA.	51	150,110
MACON	51	241,170
MONROE-EL DORADO	51	175,960
QUINCY-HANNIBAL-KEOKUK	51	103,520
FRESNO-VISALIA	50	576,820
MEDFORD-KLAMATH FALLS	50	167,820
SPOKANE	50	420,640
YAKIMA-PASCO-RICHLAND-KENNEWICK	50	231,950
AMARILLO	49	197,110
GREAT FALLS	49	65,930
HATTIESBURG-LAUREL	49	109,950
JOPLIN-PITTSBURG	49	151,200
TWIN FALLS	49	64,100
YUMA-EL CENTRO	49	113,230
ALBUQUERQUE-SANTA FE	48	691,450
CLARKSBURG-WESTON	48	106,480
IDAHO FALLS-POCATELLO	48	125,710

MISSOULA	48	113,010
BANGOR	47	138,040
BEAUMONT-PORT ARTHUR	47	167,110
GREENVILLE-SPARTANBURG-ASHEVILLE-ANDRSN	47	846,030
LEXINGTON	47	485,630
BIRMINGHAM	46	717,530
COLORADO SPRINGS-PUEBLO	46	343,990
DES MOINES-AMES	46	427,860
LINCOLN & HASTINGS-KEARNEY, PLUS	45	276,790
PHOENIX	45	1,812,040
SOUTH BEND-ELKHART	45	319,860
ALEXANDRIA, LA.	44	89,280
DULUTH-SUPERIOR	44	169,610
EVANSVILLE	44	284,040
HUNTSVILLE-DECATUR, FLORENCE	44	390,590
TALLAHASSEE-THOMASVILLE	44	273,120
BUTTE-BOZEMAN	43	67,180
CHARLESTON-HUNTINGTON	43	455,490
DAVENPORT-ROCK ISLAND-MOLINE	43	303,800
OTTUMWA-KIRKSVILLE	43	46,730
PRESQUE ISLE	43	29,250
RENO	43	265,600
SACRAMENTO-STOCKTON-MODESTO	43	1,387,710
SALT LAKE CITY	43	917,370
SAVANNAH	43	334,750
TRAVERSE CITY-CADILLAC	43	241,800
TUCSON (NOGALES)	43	438,440
FORT WAYNE	42	265,390
JOHNSTOWN-ALTOONA	42	288,100
MOBILE-PENSACOLA	42	525,990
SANTA BARBARA-SANTA MARIA-SAN LUIS OBISPO	42	231,950
TRI-CITIES, TENN.-VA.	42	319,060
WACO-TEMPLE-BRYAN	42	349,540
WAUSAU-RHINELANDER	42	179,450

BURLINGTON-PLATTSBURGH	41	316,910
CORPUS CHRISTI	41	203,730
DENVER	41	1,566,460
DOTHAN	41	107,110
FORT SMITH	41	297,590
HARRISONBURG	41	90,260
MONTEREY-SALINAS	41	224,240
NASHVILLE	41	1,014,910
SAN ANGELO	41	55,820
BAKERSFIELD	40	221,740
BLUEFIELD-BECKLEY-OAK HILL	40	134,410
CHAMPAIGN & SPRINGFIELD-DECATUR	40	378,720
GREENVILLE-NEW BERN-WASHINGTON	40	303,280
LUBBOCK	40	159,840
MEMPHIS	40	662,830
SAINT JOSEPH	40	46,180
AUGUSTA	39	257,730
GAINESVILLE	39	123,430
GREENWOOD-GREENVILLE, MS	39	66,410
ALPENA	38	16,910
BILLINGS	38	109,730
EL PASO	38	339,130
EUGENE	38	235,570
JACKSON, TENN.	38	93,090
JONESBORO	38	80,740
LA CROSSE-EAU CLAIRE	38	211,670
SAINT LOUIS	38	1,243,490
TULSA	38	526,960
CEDAR RAPIDS-WATERLOO & DUBUQUE	37	342,610
CHARLOTTE	37	1,136,420
COLUMBIA, S.C.	37	398,510
HARLINGEN-WESLACO-BROWNSVILLE-MCALLEN	37	364,160
KNOXVILLE	37	520,890
LAFAYETTE, LA.	37	229,320

MADISON	37	376,670
NORTH PLATTE	37	14,720
ODESSA-MIDLAND	37	147,730
PEORIA-BLOOMINGTON	37	244,050
SIOUX CITY	37	154,830
CHARLOTTESVILLE	36	74,340
CHEYENNE-SCOTTSBLUFF-STERLING	36	56,350
COLUMBUS, GA.	36	216,920
ERIE	36	155,190
LANSING	36	251,140
LOS ANGELES	36	5,613,460
NEW ORLEANS	36	641,550
ROCKFORD	36	179,240
WILKES-BARRE-SCRANTON	36	581,020
FARGO-VALLEY CITY	35	243,890
GREENSBORO-HIGH POINT-WINSTON-SALEM	35	695,100
LAS VEGAS	35	718,990
MARQUETTE	35	84,640
TOPEKA	35	176,160
HELENA	34	28,260
MONTGOMERY	34	241,930
PANAMA CITY	34	129,390
RICHMOND-PETERSBURG	34	553,390
CASPER-RIVERTON	33	55,270
CHATTANOOGA	33	353,710
DALLAS-FT. WORTH	33	2,588,020
ELMIRA	33	95,530
RALEIGH-DURHAM	33	1,150,350
ROCHESTER-MASON CITY-AUSTIN	33	143,330
VICTORIA	33	31,560
ATLANTA	32	2,326,840
FLINT-SAGINAW-BAY CITY	32	446,010
FORT MYERS-NAPLES	32	502,050
GRAND JUNCTION-MONTROSE	32	70,580

GRAND RAPIDS-KALAMAZOO-BATTLE CREEK	32	720,150
GREEN BAY-APPLETON	32	441,800
JACKSONVILLE	32	659,170
LAFAYETTE, IND.	32	66,240
PORTLAND, ORE.	32	1,182,180
RAPID CITY	32	98,020
WHEELING-STEUBENVILLE	32	130,110
WICHITA1-HUTCHINSON, PLUS	32	450,300
EUREKA	31	59,610
LAKE CHARLES	31	94,610
MINOT-BISMARCK-DICKINSON (WILLISTON)	31	150,000
OKLAHOMA CITY	31	718,770
SIOUX FALLS (MITCHELL)	31	258,460
WILMINGTON	31	188,420
CHARLESTON, S.C.	30	316,080
CINCINNATI	30	897,890
FLORENCE-MYRTLE BEACH	30	285,550
HOUSTON	30	2,215,650
INDIANAPOLIS	30	1,089,700
MINNEAPOLIS-ST. PAUL	30	1,728,050
PORTLAND-AUBURN	30	389,530
SAN FRANCISCO-OAKLAND-SAN JOSE	30	2,502,030
BILOXI-GULFPORT	29	128,300
BUFFALO	29	632,150
GLENDIVE	29	4,050
LAREDO	29	72,590
PALM SPRINGS	29	154,560
PARKERSBURG	29	62,620
SAN ANTONIO	29	881,050
WATERTOWN	29	92,590
YOUNGSTOWN	29	260,000
CHICAGO	28	3,484,800
HARRISBURG-LANCASTER-LEBANON-YORK	28	716,990
KANSAS CITY	28	931,320

ZANESVILLE	28	32,940
BATON ROUGE	27	329,620
BEND	27	62,950
DAYTON	27	498,270
LOUISVILLE	27	670,880
MANKATO	27	52,530
OMAHA	27	414,060
ORLANDO-DAYTONA BEACH-MELBOURNE	27	1,453,170
TOLEDO	27	409,550
AUSTIN, TEX.	26	705,280
CLEVELAND	26	1,485,140
LIMA	26	51,240
SALISBURY	26	157,830
ANCHORAGE	25	156,280
BINGHAMTON	25	133,420
COLUMBUS, OHIO	25	930,460
NORFOLK-PORTSMOUTH-NEWPORT NEWS	25	709,730
BOWLING GREEN	24	78,780
MIAMI-FT. LAUDERDALE	23	1,621,130
PITTSBURGH	23	1,165,740
SEATTLE-TACOMA	23	1,818,900
WEST PALM BEACH-FT. PIERCE	23	794,310
ROCHESTER, N.Y.	22	395,680
UTICA	22	102,890
WASHINGTON, D.C.	22	2,359,160
BALTIMORE	21	1,085,070
DETROIT	21	1,845,920
MILWAUKEE	21	902,190
ALBANY-SCHENECTADY-TROY	19	540,050
SAN DIEGO	18	1,075,120
SYRACUSE	18	377,550
HARTFORD & NEW HAVEN	16	996,550
SPRINGFIELD-HOLYOKE	16	252,950
PHILADELPHIA	15	2,949,310

Public Version

TAMPA-ST. PETERSBURG, SARASOTA	15	1,806,560
BOSTON	14	2,366,690
NEW YORK	11	7,384,340
PROVIDENCE-NEW BEDFORD	11	606,400

Before the
COPYRIGHT ROYALTY JUDGES
The Library of Congress
Washington D.C.

In re)	
)	
Distribution of)	Consolidated Proceeding
Satellite Royalty Funds)	No. 14-CRB-0011-SD
-----		(2010-13)

Testimony of Toby Berlin
March 22, 2019

Testimony of Toby Berlin

My name is Toby Berlin and I am testifying on behalf of the Settling Devotional Claimants (“SDC”) in these proceedings. I have been requested to provide testimony from my professional perspective regarding how satellite carriers valued programming distributed by the four programming categories (Joint Sports Claimants, Program Suppliers, Broadcast Stations and Devotional Claimants) during the 2010-2013 period.

I. Professional Background: Work and Education History

I am the President and Founder of School of Toby, Inc., a media consulting business, which was founded in 2013. At School of Toby, I provide consulting expertise in the cable, satellite, multichannel video programming distributor (“MVPD”), over-the-top (“OTT”) industries.¹ My services include high level negotiations, strategic planning, business development, and financial, contractual and distribution support. I advise media companies, programmers, distributors and institutional investors on organizational structure, packaging, pricing, cost reduction, revenue growth, subscriber acquisition and retention, contract database, compliance, contract negotiations and strategies and crisis management.

Since 2014, I have served as a consultant to Sony Interactive Entertainment and its team that created a digital MVPD called PlayStation Vue. I was retained to provide institutional knowledge about MVPD industries and to assist PlayStation’s development of this new service that streams live TV over the Internet to a variety of devices without a

¹ MVPD (Multichannel Video Programming Distributors) generally refers to cable and satellite television companies. OTT, or “Over The Top,” refers to systems which bypass traditional over-the air, cable, and satellite-delivered programming by using the Internet.

cable or satellite subscription. In connection with this work, I have negotiated complex programming acquisition contracts, reviewed cable network and broadcast agreements, and created strategic partnerships geared toward acquiring new subscribers. As part of these responsibilities, I conceived and implemented innovative business strategies and partnerships with ISPs, MSOs, Telcos, Professional Review Sites, and Third-Party Marketing companies, all geared to subscriber and revenue growth. In addition, I provided input on revenue generation, cost reduction, subscriber acquisition and retention methodologies, and advice related to organizational structure, recruitment of top talent, and industry event attendance and hosting.

Prior to founding School of Toby, Inc., I was an executive at DIRECTV, and served as Vice President of Programming Acquisitions. At DIRECTV, I managed sourcing and negotiations for programming acquisitions across numerous categories including general entertainment, Spanish-language and international programming, shopping channels, Airborne,² adult content, and music packages. I oversaw DIRECTV retransmission/must-carry efforts, and its pay-per-view (“PPV”) for sports and special events. I was part of the business team that grew DIRECTV’s subscriber base from a few million to about 20 million subscribers, driven in large part by the offering of high-demand programming. I collaborated extensively with DIRECTV’s finance, marketing, sales, and legal departments to ensure the high value programming I acquired was consistent with corporate subscriber acquisition and retention strategies. From the time DIRECTV secured the right to distribute local channels through approximately 2007, I

² The Airborne service allowed viewers to watch DIRECTV programming on the following airlines: Continental/United, Jet Blue and Frontier.

oversaw the launch of more than 2000 broadcast channels in 143 designated market areas, either through must-carry or retransmission consent.

While my primary work at DIRECTV was to negotiate expansive deals with programmers, my goals were to obtain new subscribers and keep existing ones. So, while I was tasked with getting the most favorable terms, best rates and expansive rights from cable programmers and broadcasters, I also had to ensure that the benefits of my deals were easy for DIRECTV Marketing messaging and call centers to explain and readily perceived as valuable and friendly to subscribers.

I have previously served as an expert witness in Copyright Royalty Board proceedings. In connection with the 1999-2009 Cable Royalty Distribution Proceeding, Phase II, I was retained by the SDC as an expert witness. I testified regarding my professional background and experience, with focus on the relevance and utility of Nielsen ratings to determining the relative valuation of programs claimed within Devotional Claimants category.

I graduated from the University of Miami in Coral Gables and hold a law degree from Southwestern University of Law in Los Angeles. My Bio is attached as Exhibit 1.

II. Satellite and Cable Services: Direct Competitors

A. DIRECTV – Insurgent Startup in the MVPD World

When DIRECTV launched in 1994, its goal was to establish itself as a viable player in the MVPD world by convincing potential subscribers to sign on for its services. To achieve that, DIRECTV had to attract new subscribers, as well as lure established customers away from their current cable providers. That was not an easy task. The incumbent cable companies had been in the market for years, some for decades, and had

several advantages; notably an established customer base, top program offerings, long term contracts with Multiple Dwelling Units (MDU's) such as apartment buildings and a small technology footprint (the cable box).

By contrast, DIRECTV was costly to start, requiring installation of big receiving dishes; moreover, DIRECTV was prohibited from delivering local broadcast stations, and many Landlords prohibited the installation of a dish on their roof, making it even more difficult for potential subscribers to access the service. DIRECTV subscribers that wanted local TV stations had to either purchase a supplemental broadcast-basic subscription from their local cable provider or use an over-the-air antenna. Under a statutory reform, satellite carriers were required to set aside up to 4% of their channel space for non-commercial programming. To meet this requirement, DIRECTV selected, among a number of networks with popular offerings, including several religious-based services (Trinity, Inspirational Life and EWTN). So even in its early days, religious programming was important to DIRECTV, its subscribers and its growth.

I joined DIRECTV in 1998, which turned out to be a propitious time. By 1999, DIRECTV acquired major competitors, PrimeStar and USSB, increasing its market share, and law reform allowed satellite carriers to carry local channels, subject to retransmission consent. This legal reform was critical to launching DIRECTV on the path to parity with cable, because it enabled satellite carriers to match the broadcast station offerings of cable operators. Other key drivers that enabled DIRECTV to compete more effectively with cable were 1) its decision to offer a free dish and receiver plus installation, 2) its improvement of the quality of reception on the dishes (making them less sensitive to bad

weather and shrinking the size of the dishes), 3) its development of a rich and nuanced content strategy, and 4) its exploitation of “spot beam” satellite technology.

Once satellite carriers were allowed to deliver local channels, broadcast became a service that DIRECTV knew it could go toe-to-toe with incumbent cable system operators. As the executive responsible for initial “local into local” line-ups, I was determined to compete directly with local cable operators by matching their local into local channel lineups, and by bolstering the DIRECTV program lineup with popular broadcast channels from outside a particular DMA that cable did not carry.

What allowed DIRECTV to maximize its broadcast strategy was development and implementation of “spot beam” technology. Spot beam technology enabled a satellite carrier to target signal delivery to specified DMAs; previously, only CONUS (Continental US) was available, which meant that each local signal would have used bandwidth that covered the entire United States, which would have been a waste of bandwidth.

I was able to creatively use spot beam technology in two ways. First, I would do a side by side analysis of the cable line-up in a DMA to ensure I could match it, sometimes using out-of-market or distant signals. An example of this is the WB Network. Cable carried this network by deploying a technology known as “cable in a box,” whereby WB delivered the signal to each cable head end. WB was a popular network at the time and WB would not allow neither Dish nor DIRECTV to carry it for competitive reasons. However, because the WB Network was also carried on broadcast stations in a distant market (for example, WDCW, Washington, DC), DIRECTV could rely on the statutory satellite license to retransmit the broadcast affiliate to our launched DMAs and pay a

compulsory out-of-market royalty fee. This allowed DIRECTV to compete with cable for those subscribers looking for the WB network. Additionally, because the distant station affiliated with the WB also carried a variety of other programs, we could service not only our subscribers interested in WB content, but also those interested in the other program offerings as well.

Second, if I had a popular channel in one DMA but it was not carried in the DMA shared by the spot beam, I could transmit it to all DMAs within the spot beam's range and pay just the compulsory out of market royalty fees for the extra DMAs. Once again, the popularity of a particular signal might be judged in the first instance by its offering of certain original programming, but since the television stations typically carried a diverse mix of programs, the full array of content assured the signal was attractive to a diversified group of DIRECTV subscribers.

B. Importance of Niche Programming

Throughout my tenure at DIRECTV, it was always important to have niche programming – content that was especially attractive to particular sectors of the subscriber base. Niche content appeal became more pronounced in the period between 2008 and 2013, as DIRECTV's offering had become very similar to cable: channel line-ups, user interfaces, retail packaging and pricing structures were almost indistinguishable from one another. While DIRECTV's technology (picture quality) and supplemental services (e.g. its program guide was more intuitive) remained superior, it seemed the two sides were simply trading subscribers back and forth.

However, DIRECTV had something that cable did not have and that was NFL Sunday Ticket, the popular NFL product where subscribers could get every NFL game

each Sunday of the season. DIRECTV was keenly aware that this product was valued by a certain key, subset of subscribers, and DIRECTV worked hard to develop ancillary products in order to keep that subset renewing their subscriptions, such as “Red Zone” and “DIRECTV ScoreGuide”.

Since we had NFL Sunday Ticket for the pro football fan, which tended to be male and somewhat affluent, we worked hard to find programming for other niche audiences. Niche audiences are groups that tend to fit a certain demographic or a specific cultural profile, and are highly engaged with content that speaks to that profile. To that end, we were always looking for programming that spoke to these highly-engaged niche audiences. The categories we focused on were sports, women, foreign-language, children, and religion.

C. The Importance of Acquiring and Keeping Subscribers

Fundamentally, success in the satellite television industry is predicated upon getting “good” subscribers and keeping them. This task is accomplished one subscriber at a time, which is a big commitment, given the size and scale of the satellite subscriber base. Emphasis on getting good subscribers and keeping them comes down to Subscriber Acquisition Cost, or SAC. There are several metrics used in the satellite television distribution industry: ARPU (average revenue per unit, or how much is extracted from each subscriber household); AMPU (average margin per unit, or how much gross margin is made from each subscriber), and churn rate (how many subscribers leave the platform every month). But it all starts with SAC, or how much it costs the distributor to add each new subscriber. This number can include a set top box, truck roll, installation, and any marketing it takes to get that subscriber to say yes. SAC is typically many hundreds of

dollars, depending on the complexity of the installation. That amount is why it is so important to bring on good subscribers: if the distributor is investing that much money in SAC to bring a new subscriber on board, the distributor needs that subscriber to stay on so the distributor can recoup the SAC; otherwise, the carrier is burning money.

To give an example, if a distributor were making a 30% margin on a \$50 package (i.e. \$15 per month), that \$15 would go first to pay down the SAC before the distributor started recognizing a profit. While it was unpopular with many subscribers, satellite carriers required new subscribers to sign a contract, usually for 24 months. However, even with long term contracts, the carrier needed to vet new subscribers using methods like credit checks, because it did not want to lose the subscriber or its SAC investment, if the subscriber could not afford the service over the term. Once a subscriber's 24 month initial commitment was completed, it was important to offer niche content that continued to appeal to various subscriber sets, so that they would maintain the service. Hence, it was important both not to lose existing programming, and to add other niche programming to maintain a loyal subscriber base. As a result, DIRECTV rarely dropped programming or entered into contract disputes so as not to give subscribers a reason to leave the service.

By 2012, there were approximately 100 million households receiving either cable or satellite programming, and the subscriber audience stopped growing. Cable and satellite MVPD had become mature, saturated industries. Thus, DIRECTV and cable operators were simply trading subscribers back and forth (churn) based on what each advertised as a better product for a more attractive price, or more generous sign-up offers.

In fact, by 2012, DIRECTV's programming and offerings were very similar to cable, and the audiences almost identical.

With a mature, established subscriber base, while bringing in new subscribers was beneficial, it was even more important to keep existing subscribers, especially "good" subscribers. What is a good subscriber? If we take a step back, recall the cost of each new subscriber and what it takes to market the product; namely, to sign on, subscribers have to be convinced to give a Customer Service Representative, in this instance, their social security number for a credit check, and allow a stranger into their home to install a pizza size satellite dish. So, it makes a lot of sense that DIRECTV (along with other satellite and cable providers) would work hard to keep existing subscribers, especially ones that paid their bills on time, ordered PPV, Premium Networks or subscribed to premium packages like the NFL Sunday Ticket. One important way to keep existing subscribers was with content, and as a Programming Executive at DIRECTV, it was my shared responsibility to ensure that our channel line-ups were competitive with cable.

D. Importance of Religious Programming

One area that was important to DIRECTV in attracting and keeping subscribers was religious programming. When I headed up Pay Per View at DIRECTV, it broadcast live PPV events for Easter and Christmas from the Crystal Cathedral. DIRECTV was pleased with the "buys," and this gave an indication of the extent to which our subscribers enjoyed religious programming. DIRECTV also produced its own specialty devotional programming, including church services from the University of Notre Dame and a televised series call "Songs of Praise," which featured well-known performers singing popular religious songs and esteemed choirs from around the country, including

Crystal Cathedral, Brooklyn Tabernacle, St. Olaf, and Coral Ridge. Also, I was responsible for negotiating carriage agreements for a number of popular Spanish religious networks such as EWTN, Red Global Catolica, Enlace Christian TV, and Almavision. All these options were supplemental to the religious programming available on the broadcast stations that we delivered subscriber homes.

III. Methodology for Allocation Satellite Royalties – 2010-2013

As noted, I was a witness in the 1999-2009 Cable Royalty Distribution Proceeding (Phase II). In that case, I testified based on my background and experience on the relevance and utility of Nielsen ratings in determining the relative value of programming within the Devotional Claimant Category. In this proceeding, the Judges are determining the relative value of programming retransmitted by satellite carriers and claimed by program owners in four diverse categories (Joint Sports, Program Suppliers, Commercial Broadcast Station Owners and Devotional Claimants) based on an allocation methodology.

I am familiar with the prior rulings of the CRB in the 1999-2009 Phase II Proceeding and the 2010-2013 Cable Allocation Proceeding. I am not an economist and do not hold myself out as an expert on the regression analyses discussed in the cable portion of this proceeding. However, in reviewing the results of the cable operator surveys (Bortz and Horowitz), I find the results in the cable case to be very close to what I would consider appropriate for an allocation of shares in this satellite proceeding (excluding the non-participating Public Television and Canadian Claimants).

As I have indicated, by 2010-2013, the cable and satellite industries were direct competitors and the views of operators in identifying the assets that they rely on to obtain

and maintain subscribers were very similar. In making a judgment about the relative value of the categories of programming at issue here, it is clear to me that cable and satellite operators think similarly.

One area that emphasizes this direct competition is the MVPD contract with program sources. Distribution deals with programmers (cable networks and broadcasters) are extremely complex. At DIRECTV, we fought hard to get the best terms. We negotiated price, packaging, rights, marketing obligations, termination rights, service descriptions and many other terms to ensure DIRECTV subscribers would enjoy uninterrupted reception of their favorite channels at the best price. As one of the largest distributors, DIRECTV deals were among the best in the industry.

One way to ensure that DIRECTV received the best terms or that no competitor received better terms was to include a “Most Favored Nation” (“MFN”) Clause as part of the deal. MFN, a complicated part of the program deal, means that for DIRECTV, no other distributor would receive better terms. MFN’s are extremely important, and most large MVPD, whether cable or satellite, would not do a deal without an MFN. As a former boss once said, we want to make sure that everyone else is experiencing the same pain as we are.

What made the MFN complicated are the added terms, such as provisions related to the size of the MVPD operation, “carve outs” or exemption applicable to third parties (such as an investor in the network or a “first mover”) and delays preventing MFN application until all deals in a cycle were completed. What put teeth into the MFN was the “black box” audit, wherein an unaffiliated third party could review other program contracts to determine if the programmer was in compliance with the MFN.

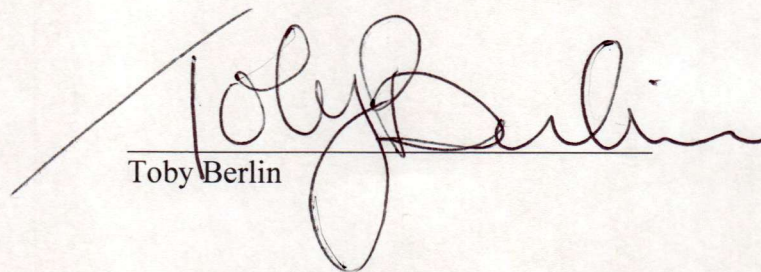
It also turned out that some cable providers, which were more geographically limited in scope, often had a better sense of the unique interests of a particular community than a national satellite provider. I frequently scoured the cable system line-ups for popular independent stations that I had not been aware of. Once I found one, I could check program offerings, ratings, demographics and popularity to ascertain if it would help DIRECTV attract new subscribers or keep existing ones.

Further, while I testified in the 1999-2009 Phase II proceeding regarding the importance of Nielsen ratings to determine the relative share of programs in the devotional category, I do not think that ratings itself have the same value or importance in the current Allocation Proceeding. Like cable operators, DIRECTV could not sell advertising for the programs and signals retransmitted under the statutory license. What DIRECTV sought to do was make available a proper mix of content that appealed to a diverse collection of subscribers. Whether a show had a 1 rating or a 10 did not change the fact that we were appealing to the interests of subscribers, one at a time. As I made clear in my discussion of niche programming, almost by definition, niche content has smaller, but nevertheless loyal, audiences. And from the satellite operator's perspective, it is the loyalty of the subscriber to the content and the service that matters.

DECLARATION OF TOBY BERLIN

I declare under penalty of perjury that the foregoing Testimony is true and correct and of my personal knowledge.

Dated: March 22, 2019



Toby Berlin

Before the
COPYRIGHT ROYALTY JUDGES
The Library of Congress
Washington D.C.

<i>In re</i>)	
)	
Distribution of)	Consolidated Proceeding
Satellite Royalty Funds)	No. 14-CRB-0011-SD
-----		(2010-13)

Testimony of Erkan Erdem, Ph.D.
March 22, 2019

TESTIMONY OF ERKAN ERDEM, Ph.D.

March 22, 2019

I. Qualifications

- 1 I, Erkan Erdem, am a Principal at KPMG LLP (KPMG) in the Economic and Valuation Services (EVS) practice. The economists and statisticians of the EVS practice provide expert analyses on economic and statistical matters to a variety of clients.
- 2 I received a Bachelor of Science in Mathematics and Bachelor of Arts in Economics from Koç University in Istanbul, Turkey in 2000. I subsequently earned a Ph.D. in Economics from The Pennsylvania State University in 2006. Between 2006 and 2010, I worked as an antitrust economist for Bates White, LLC, an economic consulting firm where I prepared expert reports on mergers and acquisitions, monopolization disputes, market power and concentration issues, and cartels. From 2010 to 2013, I worked as an economist at IMPAQ International, a research and consulting firm. In that role, I led large projects for federal agencies such as the Centers for Medicare & Medicaid Services (CMS). Since joining KPMG in September of 2013, I have been involved in projects for the New York State Department of Health, the CMS, and Maryland Health Services Cost Review Commission (HSCRC) among other clients. For the last four years, I have been teaching graduate-level econometrics at University of Maryland as an Adjunct Professor in the Masters in Applied Economics program. My research has been published in peer-reviewed economic journals. I have presented my work and research findings at numerous conferences to a wide range of audiences. I have also testified in a prior proceeding before the Copyright Royalty Board.
- 3 My curriculum vitae with detailed information on my publications, project work, and conference presentations is attached as **Exhibit 1**. This report is based upon information made available to me. I worked with a team of economists and analysts at KPMG who worked under my guidance during the preparation of my report. I reserve the right to supplement this report should additional information be made available in the future. A list of my Materials Considered for this report is attached as **Exhibit 2**.

II. Royalty Allocation Process Overview

- 4 The purpose of this proceeding is to determine the allocation of royalty funds between four categories of claimants: (1) Commercial Television (CTV); (2) Devotional; (3) Joint Sports (JS); and (4) Program Suppliers (PS). The funds that are relevant for this proceeding are collected for satellite retransmissions covering 2010-2013.
- 5 It is my understanding that per Section 119 of the Copyright Act royalty payments are made by satellite operators (SOs) when they retransmit copyrighted works included in their broadcast television signals outside the station's designated market area ("DMA") and markets where the station is designated by the Federal Communications Commission (FCC) as "significantly viewed." Royalties are deposited semiannually based on the total number of subscribers receiving each secondary transmission on a monthly basis.¹ The owners of the copyrighted works are required to file claims every July to receive a share of the royalties collected in the previous calendar year.² Because royalty deposits are not directly tied to individual programs, the Judges of the Copyright Royalty Board are charged with the allocation of and distribution of royalties among the claimants. The guiding precedent is to measure the "relative market value" of programs to allocate shares of royalties among different claimant categories.

III. Purpose of the Testimony

- 6 I was asked by the Settling Devotional Claimants (SDC) to analyze and discuss the most appropriate methodology for measuring the relative market value of a program and the allocation of royalty funds between the four categories of claimants in this consolidated proceeding for satellite 2010-2013 royalties within a "zone of reasonableness" as provided by prior orders of the Judges and their predecessor panels.

IV. Summary of Conclusions

- 7 In this report, I provide analyses showing that surveys are the best approach to determine relative market value. Specifically, my analyses show that the results of the cable surveys are the best available indication of relative market value in the satellite market. Additionally, I provide analyses showing that a fee-based regression analysis modeled on the "Waldfoegel-

¹ 17 U.S. C. § 119(b)(1)(B)

² 17 U.S. C. § 119(b)(5)(A)

type” regressions presented by certain experts in prior proceedings is not useful in determining the relative market value in these proceedings.

V. Cable Proceeding 2010-2013

- 8 Recently, the Judges issued their Final Determination for the 2010-2013 cable royalty allocation.³ It is my understanding that the current proceeding is the first time that the Copyright Royalty Judges have addressed a royalty allocation for satellite.⁴
- 9 The Judges noted in their Final Determination that “[n]o participant in any television royalty proceeding has developed a method to measure the actual market value of a content creator’s product as bundled into a broadcast signal.”⁵ This is because the royalty rates are set by statute, rather than freely negotiated prices between copyright owners and systems. As a result, the Judges must rely on indirect approaches to estimate relative market value in their royalty allocation decisions.
- 10 In the 2010-2013 cable proceeding, the Judges primarily relied on two types of evidence to assess relative market value—evidence from surveys of cable system operators (CSOs) and evidence from fee-based regression analyses.

V.A. Bortz and Horowitz Surveys

- 11 One approach for determining the relative value of program types in the 2010-2013 cable proceeding was analysis of data from surveys administered to CSOs. The two surveys primarily considered in the 2010-2013 cable proceeding were the Bortz Survey⁶ and the Horowitz Survey.⁷
- 12 The surveys ask large representative samples of CSOs (randomly selected using somewhat different, but reasonable, tiered sampling methodologies) how they would allocate a fixed budget among the various types of programming retransmitted on a distant basis. As the Judges state in their Final Determination, “[i]n essence, the surveys ask the CSOs to place a

³ *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018). Prior to the 2010 – 2013 determination, the Copyright Royalty Judges last issued a determination for the 2004 – 2005 royalty funds. *In the Matter of Distribution of the 2004 and 2005 Cable Royalty Funds*, Final Distribution Order (2010).

⁴ The Satellite Television Extension and Localism Act of 2010 (STELA) established the Copyright Royalty Judges as the authority to determine royalty allocation for satellite proceedings.

⁵ *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 77.

⁶ *In re Distribution of Cable Royalty Funds*, Written Direct Testimony of James M. Trautman (Dec. 22, 2016), attachment: BORTZ MEDIA & SPORTS GROUP, INC., CABLE OPERATOR VALUATION OF DISTANT SIGNAL NON-NETWORK PROGRAMMING 2010-2013, Table II-2 (Dec. 22, 2016) (“2010-2013 Bortz Survey”).

⁷ *In re Distribution of Cable Royalty Funds*, Written Direct Testimony of Howard Horowitz, at 4 (Dec. 22, 2016) (“Horowitz Testimony”).

relative value on the types of programming they license for retransmission to their subscribers.”⁸

13 The Judges concluded that the Horowitz survey, with a modification relating to its treatment of “Other Sports” programming (which is not a category in itself, but may include some programming in other categories), provided the best allocation measure among the two surveys.⁹ The Judges gave “relatively less weight to the ‘Augmented’ Bortz Survey” for several reasons, but “particularly the [Bortz Survey’s] acknowledged systematic bias against Public Television (PTV) and Canadian (CCG) programming.”^{10,11}

14 Additionally, the Judges noted that “the relative valuations of CSO executives do not vary wildly from the valuations derived from participants’ regression analyses” in the cable proceeding.¹²

15 In the 2010-2013 cable proceeding, I concluded as follows:

*Overall, both the Bortz and Horowitz surveys provide very useful and relevant information on how the CSOs value different types of programming on stations that they retransmit in distant markets. Even though both surveys may have shortcomings, they are designed to answer the question that is relevant for this proceeding: What are the relative values (or shares) that the CSOs assign to different types of programming on signals that are retransmitted in distant markets? Both surveys are specifically designed to answer this question with variations in implementation, and they provide very reasonable answers that can be adjusted for the flaws that are identified. In the case of Devotional claimants, both surveys provide very similar and robust results even when the shares are separately analyzed for WGNA-only systems and systems that retransmitted WGNA with other distant signals.*¹³

⁸ *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 61.

⁹ *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 79.

¹⁰ *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 79.

¹¹ It is my understanding that PTV and CCG are not claimants in this proceeding, because there was no distant retransmission of CCG programming by satellite, and satellite retransmission of PTV programming is largely governed by a different regime.

¹² *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 78.

¹³ *In re Distribution of Cable Royalty Funds*, Testimony of Erkan Erdem, Ph.D. (March 9, 2017).

16 I believe these two surveys provide the most useful and relevant information in this proceeding, too. I provide detailed explanations and analyses in the rest of my report that support my conclusion.

V.B. Fee-Based Regressions

17 In the 2010-2013 cable proceeding, several experts, most notably including Dr. Gregory Crawford, implemented regression analyses based on the regression approach that was initially proposed by Dr. Joel Waldfogel in the 2004-2005 proceeding.¹⁴ The Judges described key characteristics of a Waldfogel-type regression in their Final Determination:

Several features characterize a Waldfogel-type regression. Most importantly, such an approach attempts to correlate “variation in the [program category] composition of distant signal bundles along with royalties paid to estimate the relative marketplace value of programming.” ... Specifically, Dr. Waldfogel “regress[ed] observed royalty payments for the bundle on the numbers of minutes in each programming category” ... He also employed “‘control variables’ ... to hold other drivers of CSO payments constant.” ... Dr. Waldfogel’s control variables included the number of subscribers, local median income, and the number of local channels.¹⁵

18 Regression analysis is a widely used method that allows researchers to measure the relationship of one (explanatory or independent) variable with another (dependent) variable. The results of regression analysis may provide an estimate of the impact on the dependent variable of an incremental change in the independent (or explanatory) variable, known as the “marginal” effect. A regression analysis can be useful to uncover relationships when the dependent variable is expected to be related to multiple independent variables as opposed to a single variable. Accordingly, regression analysis is commonly used in economics to understand how a particular variable (e.g., household savings) changes with regards to changes in other observable information (e.g., income, geography, household characteristics). This multiple regression approach, properly performed and interpreted, can provide an estimate of the marginal effect of an independent variable, controlling for all the other independent variables

¹⁴ The Judges described Dr. Crawford’s approach in the 2010-13 cable proceeding as being “based on the approach taken by Dr. Joel Waldfogel” in the 2004-2005 cable proceeding. *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 10.

¹⁵ *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 11.

in the regression. It is worth noting that the “effect” or “impact” here refers to correlations among variables, but does not imply that the relationships are causal.

- 19 When a regression analysis is used to estimate the contributory value of each characteristic of a product on its market price or value, it is called a hedonic regression in economics. For example, a hedonic regression model can be used to analyze how the price of a property (e.g., single family home) changes with each characteristic, or attribute, of a property (e.g., square footage, number of bedrooms, location). Each data point that is used in such an analysis represents market equilibrium when the *demand* for a property finds a *supply* at a specific price as both sides make economic and financial optimization decisions, and preferences of the buyer are revealed. Hence, the hedonic regression approach is a *revealed preference* method of estimating value and people's *willingness to pay* for a certain product when the prices are determined in a free market. Royalties paid by CSOs and SOs are clearly not determined in a free market where forces of demand and supply determine prices.
- 20 A researcher must take proper care to understand the underlying data, and the question of interest, in order to determine if a regression analysis is appropriate and what the estimates from the model might mean if it is appropriate. I criticized the use of regression analysis in the 2010-2013 cable proceeding, because (1) the mechanism that determines how the CSOs compensate copyrighted program owners in distant markets does not represent a “free” market in which buyers and sellers exchange goods at mutually agreeable prices; (2) a volume-focused approach that relies on minutes of programming as a proxy for value is not a reliable method to assess relative market value; and (3) there is no consensus on the list of variables to include, and regression results are sensitive to the choice of variables, model specification, and influential observations. I maintain that these are important concerns, and that these concerns apply to Waldfogel-type regressions in both the satellite and cable proceedings. The most important of these concerns is the first concern, because it goes to the very essence of whether a correlation can be interpreted as value at all.
- 21 In their Final Determination, the Judges concluded that they found Dr. Crawford’s duplicate minutes regression analysis to be more compelling than the surveys, on the whole. As a result, the Judges based the allocation of 2010-2013 royalty funds primarily on the results submitted by Dr. Crawford; however, the Judges made some upward adjustments to the

Devotional shares based on the results of the surveys, and to the Canadian shares based on the results of an alternative regression approach:

[T]he Judges use Professor Crawford's point estimates as the starting point for most categories because the Judges find the Crawford (duplicate minutes) analysis to be the most persuasive methodology overall on this record. For two specific categories, however, the Judges deviate from the Crawford analysis based on other record evidence. Specifically, the Judges make a modest upward adjustment to Professor Crawford's allocation for the SDC category based on the Horowitz survey results and the Augmented Bortz survey results, together with testimony concerning the "niche" value of devotional programming. Similarly, the Judges make a modest upward adjustment to the CCG category based on Professor George's analysis and testimony that Professor Crawford's analysis (as well as the survey evidence) undervalues Canadian programming to a degree. The Judges adjust the Crawford-based allocations for the remaining categories to account for the increased allocations to the SDC and CCG categories, and to ensure that the percentages total 100% after rounding.¹⁶

VI. Comparison of Satellite and Cable Markets

22 In this section, I describe some of the similarities and differences in circumstances between the cable and the satellite retransmission markets, and other information that may be relevant to the Judges' determination of royalty allocation in this proceeding.

VI.A. Comparison of regulatory framework

23 There are several key similarities in the regulatory framework for royalty allocation of distantly transmitted signals in satellite, as compared to cable. For instance, royalties in both cable and satellite are set by a regulatory formula that is either based on or strongly related to the number of subscribers.¹⁷ Satellite royalty payments are based on a fixed amount per station per subscriber per month, ranging from 25 to 27 cents for each residential customer and 50 to 54 cents for each commercial customer during the 2010-2013 time period. The total royalty payment for a station has nothing to do with the content on the station (similar to the

¹⁶ *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 118-119.

¹⁷ 17 U.S. C. § 111(d)(1)(B) for cable and 17 U.S. C. § 119(b)(1)(B) for satellite.

cable royalty amounts); however, unlike cable, satellite has no 3.75% or Syndicated Exclusivity pools of funds. All funds are deposited into a single pool to be distributed to claimants. Program categories in the satellite proceeding—PS, CTV, Devotional and JS—are all defined in the same way as they were in the cable proceeding. Compensability of programming on WGN America (WGNA), discussed further below, is treated similarly in the satellite proceeding as it was in the cable proceeding.

- 24 In addition to the similarities above, there are some notable differences in the regulatory framework for royalty allocation of distantly transmitted signals in satellite, as compared to cable. For instance, the CCG and PTV claimants are not part of the royalty allocation for satellite, because there was no distant retransmission of CCG programming by satellite, and satellite retransmission of PTV programming is largely governed by a different regime. Network programming (predominantly PS programming, but also including some JS and Devotional programming), is not compensable in the cable proceeding, but is compensable for satellite. Certain matters from the cable proceeding are not applicable to the satellite proceeding — specifically the Base Rate Fee, 3.75% fee, Syndicated Exclusivity Fee, and Minimum Fee – making the satellite data less complicated compared to the data in the cable proceeding.
- 25 Importantly for purposes of application of any fee-based regression, satellite providers submit royalty payments by station, rather than by subscriber group as in the cable proceeding for 2010-2013.

VI.B. Comparison of market facts

- 26 Multichannel video program distributors (MVPDs) are profit-maximizing entities that offer “bundles” of programming to subscribers in exchange for a subscription fee.¹⁸ Both CSOs and SOs are considered to be MVPDs.
- 27 MVPDs sell bundles of channels to their subscribers with the purpose of attracting a wide range of viewers. That is, subscribers cannot pick and choose the individual channels they are interested in. Instead, they can select from a small list of “bundles” (ranging from “basic” channels to “premium” channels), and these bundles come with channels and programs a subscriber is interested in together with those the subscriber has no interest in watching. For

¹⁸ MVPDs may also generate revenue from advertising fees for certain programming, but not for the programming at-issue in this proceeding.

this reason, the MVPDs carry a wide range of TV channels covering program types such as sports, movies, TV shows, religious programs, and many more. Testimony in the cable allocation proceeding indicated that distantly retransmitted broadcast stations are almost always included in the “basic” package offered by the cable system, and I understand this to be the case for satellite systems as well.¹⁹

28 According to the FCC, “[c]onsumers compare video packages and prices from the MVPDs offering services to their home and subscribe to the MVPD that best matches their preferences.”²⁰ The FCC further noted that “most consumers have access to three competing MVPDs (two [satellite] MVPDs and a cable MVPD) [and] some consumers also have access to a competing telephone company MVPD, for a total of four MVPDs.”²¹ From an economic standpoint, CSOs and SOs are considered to be in the same product market—the market for “timely distribution of professional, full-length video programming to residential customers” (MVPD programming).²²

29 In general, CSOs and SOs offer very similar programming to their subscribers. MVPD programming is not a homogeneous good, and MVPDs do enjoy some small degree of product differentiation in terms of programming and other features. However, the programming offered tends to be similar. In terms of distantly transmitted signals, the list of stations in satellite is a subset (or sample) of the stations in cable.²³ CSOs, as a whole, distantly retransmit more stations in a given year than do satellite operators. There are a maximum of 117 distantly transmitted stations in any given year from 2010 to 2013 in the Cable Data Corporation (CDC) satellite data. In contrast, cable operators retransmitted more than 1,400 stations in each year during 2010-2013 (including more than 1,000 commercial stations). A principal reason, and perhaps the principal reason, that there are more stations

¹⁹ *In re Distribution of Cable Royalty Funds, Corrected Written Direct Testimony of the Commercial Television Claimants Group*, Corrected Written Direct Testimony of Gregory S. Crawford, at 6.

²⁰ FCC’s “18th Annual Video Competition Report” <https://docs.fcc.gov/public/attachments/DA-17-71A1.pdf>

²¹ *Ibid*

²² In its Competitive Impact Statement related to the merger between Comcast and NBC Universal, the Department of Justice defined the relevant product market as the market for “timely distribution of professional, full-length video programming to residential customers”. The Department of Justice considered online video programming distributors (OVDs), which offer programming over the Internet, to also be included in the relevant market. Competitive Impact Statement, *United States v. Comcast Corp. et al*, 808 F. Supp. 2d 145 (D.C. Cir. 2011). Because OVDs are not under consideration in this proceeding, I restrict my discussion to MVPDs.

²³ Of the 137 total unique stations that appear in the satellite CDC satellite data during 2010-2013, 135 also appear in the CDC cable data for distant retransmissions.

retransmitted by cable than by satellite is because the average incremental cost of distant retransmission by satellite is several times higher than the average incremental cost of distant retransmission by cable, as I detail later in my report. Bandwidth limitations on satellite retransmissions may also play a role. However, as I detail later in my report, among those signals that are retransmitted by both cable and satellite, there is a strong correlation between how widely they are retransmitted, suggesting that cable and satellite systems choose what to retransmit on similar bases and for similar purposes.

- 30 Finally, as mentioned above, CSOs and SOs try to attract the same customers. As described above, most markets have at least two SOs and one CSO. In most markets, CSOs and SOs compete directly against each other for the same customers. Aside from the differences in the level of competition across geographies, CSOs and SOs have the same business objectives (i.e., attract subscribers), and their valuation of different kinds of programming is expected to be very similar.

VI.C. Comparison of available data

- 31 In order to assess the similarities between the cable and satellite markets, I calculate the correlation between the average number of cable distant subscribers and the average number of satellite subscribers at the station-level in each year.²⁴ The correlation coefficient in each year is over 0.99. Since WGNA has substantially more subscribers than the other stations on both cable and satellite and appears to be an influential observation (therefore requiring further investigation), I also considered the correlation between cable and satellite subscribers excluding WGNA. The correlation coefficient in each year ranges from 0.50 to 0.67, showing that there is a positive relationship between average cable distant subscribers and average satellite subscribers even among stations other than WGNA. **Exhibit 3** provides a scatter plot of average number of cable distant subscribers and the average number of satellite subscribers (both in natural logarithm) at the station-level visually showing the strong positive correlation. Hence, in terms of the demand for distantly retransmitted stations offered by CSOs vs. SOs, it is clear that the stations with low (or high) cable distant subscribers tend to have low (or high) satellite subscribers.
- 32 In **Exhibit 4**, I also investigate the relationship between distant subscribers and minutes of programming (both in natural logarithm) for each claimant category in satellite using station

²⁴ Throughout this testimony, satellite subscribers refers to both residential and commercial subscribers.

level data. For PS and Devotional, there is a positive correlation between distant subscribers and minutes of programming on stations retransmitted by satellite. For CTV, there does not appear to be a strong positive or negative relationship (with a slightly downward sloping fitted regression line) between distant subscribers and minutes of programming.²⁵ For JS, the relationship between distant subscribers and minutes of programming retransmitted by satellite is negative. Stations with larger numbers of subscribers are more likely to have less JS programming.

- 33 To understand why there is significantly less retransmission in satellite compared to cable (in terms of number of stations), I compare the average (incremental) costs of retransmitting stations in an apples-to-apples comparison. The cost of retransmission in satellite is a known value – 25 to 27 cents per station per subscriber per month for residential customers. I calculate the counterpart of this value for cable using system level data by subtracting the minimum fee from total royalties paid (a required fee that all systems must pay, and therefore not an incremental cost) and then dividing by both the number of distant subscribers and the number of distant stations. In addition to this simple average, I also calculate a weighted average using distant subscribers as weights, as detailed in **Exhibit 5**. The weighted average cost per station per subscriber in cable is estimated as approximately 8 cents per reporting period. Since the cable data (royalties paid, distant subscribers, and distant stations) is reported by accounting period, the weighted average cost per station per subscriber per month is approximately 1.3 cents, about one twentieth of the cost in satellite. At least from an economic cost perspective, this is a likely explanation for observing significantly more stations being retransmitted by CSOs compared to SOs.

VI.D. Conclusions Regarding Satellite and Cable Markets

- 34 To summarize, CSOs and SOs compete in the same market—the market for MVPD programming. They offer similar programming and compete for the same customers. As a result, I conclude that the decision-making process to determine relative valuations for cable and satellite is essentially the same. That is, there is no reason to believe and no evidence to suggest that SOs value programming differently than CSOs to any noticeable degree based on

²⁵ The correlation coefficient for distant subscribers and CTV minutes of programming retransmitted by satellite is not statistically significant. For PS, Devotional, and JS, the correlation coefficients for distant subscribers and minutes of programming retransmitted by satellite are statistically significant at the 10 percent level.

the available data, and there is strong reason to expect that SOs and CSOs value programming similarly, as would be expected of direct competitors in the same market.

VII. Survey Data Approach to Determine Relative Market Value

35 In Section V above, I discussed the use of surveys in the cable proceeding. In Section VI above, I compared the cable and satellite markets. In this section, I will discuss the applicability of the Bortz and Horowitz surveys to the determination of relative market value in this satellite proceeding. First, I evaluate whether surveys of CSOs can be relied upon to estimate relative value in this proceeding. Next, I evaluate whether certain concerns the Judges expressed in the cable proceeding are applicable to the satellite proceeding.

VII.A. Applicability of CSO surveys to relative value for satellite

36 The Judges noted in their Final Determination that “[a]s buyers of the broadcast signals, CSO executives’ valuations reflect their conclusions regarding the extent to which the category of programming contributes to the return on that investment; *i.e.*, helps the cable system attract and retain subscribers.”²⁶ As I described above, both cable and satellite MVPDs compete in the same markets, with the same available programming, trying to attract the same customers. There is no reason to believe that satellite executives’ valuations of the different categories of programming differ in any meaningful way from cable executives’ valuations of the different categories of programming.

37 In addition to the above, there are additional reasons to believe that the surveys can be reliably applied to satellite. First, the surveys cover only “Form 3” cable systems, which are the larger systems with semi-annual gross receipts over \$527,600. Satellite providers, because they are national in scope, are more similar to “Form 3” cable providers than they are to very small cable providers with gross receipts that fall below the Form 3 threshold. Second, the Judges concluded “that survey results offer one acceptable measure of relative value, *particularly for Sports, Program Suppliers, Commercial TV, and Devotional programming.*”²⁷ (emphasis added) These are the four categories of programming under consideration in the current proceeding.

²⁶ The Judges added the following in a footnote: “Subscribers are a major source of revenue for cable systems; consequently, CSOs focus on retention of subscribers. In some instances, a CSO might relicense a signal with less viewed, niche programming to avoid losing a subscriber to a competing system.” ²⁶ *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 77.

²⁷ *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 79.

VII.B. Evaluation of concerns from cable proceeding in the satellite proceeding

38 The Judges expressed some concerns with the surveys in the cable proceeding. One concern—how the surveys accounted for non-compensable programming on WGNA—was relevant for both surveys, albeit in different ways. Other concerns were relevant to either the Bortz Survey or the Horowitz Survey. I address these concerns next.

VII.B.1. Non-compensable programming on WGNA

39 One concern with the Bortz survey from 2004-05 was that it did not account for non-compensable programming on WGNA. The Bortz survey attempted to mitigate this concern for the 2010-2013 proceeding by providing WGNA-only respondents with a description that implies compensability.²⁸ The Horowitz survey also attempted to account for non-compensable programming on WGNA by reminding respondents not to assign any value to programs that were substituted for WGN's blacked out programming if their systems carried WGNA.²⁹

40 The Judges' Final Determination preferred Bortz's method accounting for WGNA programming to Horowitz's: "Bortz attempted to improve on the measure of WGNA retransmissions criticized in the 2004-05 proceeding. Horowitz also addressed the issue from the 2004-05 Bortz survey, but with less specificity than Bortz achieved in its 2010-13 survey for WGNA-only cable systems."³⁰ Ultimately, the Judges found that "the surveyed cable system executives were sufficiently familiar with the compensable content on the signals their respective systems retransmit."³¹ Although some experts in the cable proceeding speculated that one or both of the two surveys may tend to credit positive value to noncompensable programming, I am the only expert who proposed a test of this hypothesis. My equality of means test failed to demonstrate that the presence of noncompensable programming resulted in a statically significant difference in allocations, suggesting that the

²⁸ Bortz instructed WGNA-only respondents in 2010 that: "The specific 2010 WGN America programming that I would like to ask you about in this survey is only the programming that was available throughout the United States, including in the Chicago area." 2010-2013 Bortz Survey at C-2. This example is from the "2010 System Operator Programming Questionnaire - WGN only." The 2011-2013 questionnaires had the same explanation with the relevant reference year in the script.

²⁹ Horowitz instructed WGN systems in 2013 to: "Please do not assign any value to programs that are substituted for WGN's blacked out programming." *In the Matter of Distribution of the 2010, 2011, 2012, and 2013 Cable Royalty Funds*, Direct Testimony of Howard Horowitz (Dec. 22, 2016) Appendix A at 36. This example is from the "2013 Cable Operator Questionnaire." The 2010-2012 questionnaires had the same instructions.

³⁰ *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 77.

³¹ *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 78.

mitigating approaches taken by the Bortz and Horowitz surveys were adequate to address the potential issue (or at least demonstrating that the mitigating approaches have not proven to be inadequate).

VII.B.2. Other Concerns with the Bortz Survey

- 41 One concern with the Bortz survey is that it did not account for operators with PTV only or Canadian only stations. This is not an issue for the satellite proceeding because PTV and CCG are not parties to the satellite royalty allocation. Hence, there should be less concern to rely on royalty allocations that are implied by the Bortz survey, and there is no need for an additional “McLaughlin Adjustment” to the Bortz results.

VII.B.3. Other Concerns with the Horowitz Survey

- 42 The three major criticisms of Horowitz that the Judges considered in the cable proceeding were the reliance on acquisition and retention of subscribers, the creation of a separate “Other Sports” category, and the methodological choice to provide examples of shows that might fall under the categories. I summarize the Judges’ conclusions and the applicability of the criticisms to the satellite proceeding below.
- 43 The Judges did not agree that Horowitz’s reliance on acquisition and retention was a concern. As cited above, the Judges view CSO’s valuations of each category as a reflection of the category’s ability to help it attract and retain subscribers. Thus, Horowitz’s survey reflects information that the Judges consider to be important to the determination of relative valuation. Since the programming and valuation decision-making process is similar for SOs as it is for CSOs, this should not be a concern for satellite either.
- 44 The Judges viewed Horowitz’s treatment of “Other Sports” as a separate category and decision to apply all “Other Sports” programming to the PS as concerns. As a result, the Judges adjusted the Horowitz survey to reallocate the “Other Sports” category proportionally among the claimants. To the extent that “Other Sports” is not shown to be a valid category or not shown to consist exclusively of PS programming, this adjustment makes sense. Because the programming and valuation decision-making process is similar for SOs as it is for CSOs, there should be no reason not to apply a similar adjustment to the Horowitz survey for use in the satellite proceeding.

45 The Judges noted that the inclusion of program examples for some of the program categories could have introduced bias.³² However, as the judges acknowledged, it is also possible that the examples had no effect on the results.³³ Because nobody has proposed a test of this hypothesis, I cannot conclude that the use of examples introduced a bias or what the direction of any bias may have been.

VII.C. Conclusions Regarding Bortz and Horowitz Surveys

46 I conclude that the CSO survey results can reasonably be applied in the satellite context. One of the concerns from the cable proceeding—that the Bortz survey undervalues PTV and CCG—is eliminated because those categories are not relevant for the satellite royalty allocation. Surveys of cable operators’ choices (to build bundles that their subscribers demand) represent a reliable proxy for satellite operators’ choices, because cable operators and satellite operators compete in the same markets, trying to attract the same customers. Thus, the surveys provide a reliable measure of relative value for the satellite proceeding.

47 It may be reasonable to adjust survey results to account for the fact that network programming is compensable in satellite, but not compensable in cable. Because network programming is predominantly PS programming, with some JS and Devotional programming, any adjustment would be expected predominantly to benefit PS. Because network programming, by definition, does not include any CTV programming, any adjustment would be expected to come predominantly, if not exclusively, from the CTV share.

VII.D. Redistribution of Bortz and Horowitz Survey Results

48 Since the CSO surveys include the CCG and PTV categories that are not relevant for this proceeding, the shares for CCG and PTV need to be re-allocated to other categories. Additionally, the “Other Sports” shares in the Horowitz survey need to be re-allocated to the other categories, consistent with the Judges’ treatment in the cable proceeding. In **Exhibits 6 and 7**, I allocate CCG and PTV shares from the Bortz survey, and the CCG, PTV, and “Other Sports” shares from the Horowitz survey, respectively, proportionally among the remaining four categories. I perform this allocation in two ways: (1) I allocate the shares from each survey respondent to the remaining four categories, and then recalculate the shares by year as

³² *In re Distribution of Cable Royalty Funds*, Final Determination of Royalty Allocation (2018), at 78.

³³ *Ibid.*

the average of the redistributed survey shares for Bortz, and as the weighted average of the redistributed survey shares for Horowitz, and (2) I allocate the final Bortz and Horowitz shares in each category and year to the remaining four categories.³⁴

49 In **Exhibit 6**, I include the original Bortz shares, the original Bortz shares for WGNA-only respondents, and the redistributed Bortz shares with CCG and PTV allocated proportionally to the remaining claimant categories, at the survey-level and also at the claimant-level. For the survey-level redistribution, the resulting Devotional shares range from 4.60 percent to 5.78 percent depending on the year.

50 In **Exhibit 7**, I include the original Horowitz shares, the original Horowitz shares for WGNA-only respondents, and the redistributed Horowitz shares with CCG, PTV, and “Other Sports” allocated proportionally to the remaining claimant categories, at the survey-level and at the claimant-level.³⁵ The resulting Devotional shares for the survey-level redistribution range from 4.50 percent to 7.87 percent depending on the year.

VIII. Regression Approach to Determine Relative Market Value

51 In Section V above, I discussed Waldfogel-type regressions, including the regression analysis of Dr. Gregory Crawford—which the Judges primarily relied on for their royalty allocation decision. The purpose of this section is to assess whether or not the regression approaches undertaken by Dr. Crawford in the cable proceeding can be relied upon to assist the Judges in this proceeding. As summarized above in this report, I criticized the use of regression analysis in the cable proceeding for a number of reasons. I conclude that the criticisms apply equally to the satellite proceeding, making regression analysis an unreliable approach to estimate relative market value of programming. Although I recognize that the Judges did not accept some of my criticisms, and gave only limited weight to others, I hope that I can provide some clearer explanation as to why the results of a fee-based regression are not informative as to relative market value.

³⁴ The Judges used the same approach to adjust for Horowitz’s “Other Sports” category in the cable proceeding. *Ibid.*

³⁵ In the Horowitz Testimony, the original result in 2013 for PTV is 15.39 percent. However, when I recalculated the shares using Dr. Martin Frankel’s code, I arrived at a PTV share of 15.29 percent in 2013. All other shares match those in the Horowitz Testimony. Therefore, I used my calculated PTV share of 15.29 percent in 2013 in my redistributions assuming that the value in the testimony was a typo.

VIII.A. Dr. Crawford's Regression Approach

- 52 There is no articulated theory as to how a hedonic regression can reveal relative market value in the absence of any variation in price that is related to value. Because the only variation in the price of satellite retransmission is related to volume (number of subscribers) and subscriber type (residential or business), any correlation between number of minutes and fees paid is driven almost entirely by variations in the number of subscribers receiving the station (or, in cable, the number of subscribers in the subscriber group receiving the station or stations). Without an articulated theory as to how market value relates to the number of subscribers, we do not even have a framework to discuss how to specify a regression based on fees.
- 53 But because I need to start with some specification in order to illustrate more clearly why a hedonic regression is not expected to reveal value in these proceedings, I decided to start by trying to adapt Dr. Crawford's regression in the cable proceeding for use with satellite retransmission data.
- 54 Dr. Crawford's regression, as with all Waldfogel-type regressions, related variation in royalties paid to variation in minutes of each programming type. Dr. Crawford's specific model was of a log-linear form—it related the natural log of royalties paid to variation in the level of programming minutes for each type. The model included many control variables, including county median income, dummy variables for special circumstances (i.e., minimum fee, 3.75% fee, syndicated exclusivity fee), number of permitted stations, number of distant stations, number of local stations, lagged number of channels activated, lagged number of subscribers, dummy variables for each of the 6 largest MSOs, and dummy variables for each of the 6 largest MSOs interacted with lagged number of subscribers. In addition to these control variables, Dr. Crawford also included system-accounting period fixed effects.
- 55 Dr. Crawford implemented his approach at the subscriber group level. A subscriber group is a set of subscribers to a cable system that receives the same set of distant broadcast signals from the cable system. Because of Dr. Crawford's use of system-accounting period fixed effects, his specification relied on variation across subscriber groups within a system (as opposed to across systems) and within an accounting period (as opposed to across accounting periods), and it therefore effectively excluded every system with only a single subscriber group.

VIII.B. Data Available in This Proceeding

- 56 Because of the differences in the regulatory framework surrounding distant signal programming for satellite, the fact that there are many fewer satellite systems than cable systems, and the fact that satellite operators provide coverage on a national basis, there are some key differences between the Cable Data Corporation (CDC) royalty data available in the cable proceeding and the data available in the satellite proceeding.
- 57 First, there are fewer observations for satellite than cable. Whereas Dr. Crawford's regression dataset contains 26,126 observations (one for every subscriber group-accounting period), the CDC data for satellite contains only 1,047 observations (one for every station-system-accounting period). The relatively smaller size of the satellite dataset reflects the fact that the CDC satellite data is aggregated at the station level rather than the subscriber group level, and the fact that fewer stations are retransmitted each year for satellite than for cable.³⁶ **Exhibit 8** shows the number of stations and SOs per accounting period in the CDC satellite data for each year during 2010-2013.
- 58 Second, there are far fewer satellite systems than there are Form 3 cable systems. Indeed, the only satellite systems that retransmitted on a distant basis in all four years at issue in this proceeding were: DirecTV, DISH, and DISH Puerto Rico. There were two other very small systems that retransmitted on a distant basis in 2010 only, and one very small system that retransmitted on a distant basis in 2011-2013.
- 59 Unlike in cable, fees paid by a system are disaggregated by station, rather than by subscriber group. Therefore, although it is possible to more directly identify the amount of fees that a system pays for retransmission of a particular distant signal, it is not possible to identify the location of the subscribers receiving the distant signals, or to identify what other signals those subscribers receive on a distant basis.
- 60 Certain variables used in Dr. Crawford's regression are not available in the CDC satellite data. Specifically, the information on special circumstances in cable retransmissions (i.e., minimum fee, 3.75% fee, syndicated exclusivity fee) do not apply to satellite (and such variables are not available in the data). Number of permitted stations, number of distant

³⁶ As I stated in Section VI.B above, there are a maximum of 117 distantly transmitted stations in any given year from 2010 to 2013 in the CDC satellite data. In contrast, cable operators retransmitted over 1,400 stations in each year from 2010 to 2013.

stations, number of local stations, and lagged number of channels activated cannot be determined because there are no subscriber groups to which these variables would apply.

61 Additionally, because there are only six systems in the satellite data, there is essentially no functional distinction between system-level satellite data and the “MSO” information in the CDC cable data. Therefore, there is no “MSO” identity separate from the satellite system identity, rendering any “MSO” variable superfluous.

VIII.B.1. Royalty Data

62 Each satellite provider is required to file a report semiannually with the Copyright Office. The data was provided in separate files for each accounting period, with all variables included in each dataset. To form the full analysis dataset, I simply append the datasets for each accounting period together, ending up with an observation for each SO, accounting period, and station. The most important fields in the CDC satellite data for adaptation of Dr. Crawford’s specification are royalties paid, number of subscribers, name of the SO, station name/ID, and accounting period.³⁷

VIII.B.2. Programming Minutes Data

63 In addition to the data elements from the CDC satellite data, I relied on the FYI Television (FYI) data used in Dr. Crawford’s cable analysis to calculate programming minutes for each station. Dr. Bennett developed an algorithm using the data provided by FYI to assign program airings to the correct categories, and provided this data to Dr. Crawford.³⁸

64 I used the algorithm that Dr. Bennett developed to classify the program airings data to the claimant categories, with one material alteration. Because network programming is non-compensable in the cable proceeding, Dr. Bennett’s code places all network programming in its own category (Big-3), and sets all compensable minutes in this category equal to zero. However, in the satellite proceeding, network programming is compensable. Therefore, in order to get the correct airings data for satellite, I did not run the part of the algorithm that classifies all network programming as Big-3, and instead let Dr. Bennett’s algorithm classify the data into the other claimant categories. Lastly, I kept only the stations in the FYI data that

³⁷ Royalties paid and number of subscribers include both residential and commercial customers. Additionally, “accounting period” refers to the semiannual period.

³⁸ *In re Distribution of Cable Royalty Funds, Corrected Written Direct Testimony of the Commercial Television Claimants Group*, Corrected Written Direct Testimony of Christopher J Bennett, at 7.

were distantly retransmitted by satellite as shown in the CDC data, because Dr. Crawford's regression does not include signals that are not retransmitted.

VIII.C. Modified Waldfogel-type Regression Analysis

65 Given the data available to me in this proceeding, I attempt to adapt Dr. Crawford's regression model in the satellite setting as closely as possible by conducting a Waldfogel-type regression analysis at the system, station, and accounting period level (instead of at the system, subscriber group, and accounting period level in Dr. Crawford's approach in the cable proceeding). This modified approach is necessitated by the presence of stations in place of subscriber groups in the CDC satellite data.

66 As the satellite data includes a small number of stations that are also available to commercial subscribers for whom the per subscriber fees are higher (i.e., 54 cents vs. 27 cents in 2013), I aggregated them to come up with total royalty and total subscriber values for each station, and used these values in my analyses.

VIII.C.1. Regression Variables

67 Despite the differences in datasets described above, I attempt to design my specification to be as close to Dr. Crawford's specification in the cable proceeding as possible. I implement this regression analysis at the station level, the most detailed level that is available, which I believe is the approach most consistent with Dr. Crawford's apparent intent to apply his approach to the most detailed level available so as to permit the use of fixed effects at the system-accounting period level, thereby observing variation *within* a system in an accounting period, rather than *across* systems or accounting periods. It is not clear to me *why* we would be interested in variation within a system and accounting period, rather than across systems or accounting periods. But this is the most faithful execution of Dr. Crawford's apparent intent that the data will permit.

68 As Dr. Crawford did, I implement a log-linear specification in my "baseline" specification, with the natural log of royalty fees as the dependent variable and the number of minutes of each programming type (measured in levels) as the key explanatory variables. Similar to Dr. Crawford's regression, I included dummy variables (fixed effects) for each system-accounting period.

69 Similar to Dr. Crawford's regression specification, I include the level (or untransformed) lagged number of subscribers for each station in the model as an independent variable. Dr.

Crawford noted in his report that the use of lagged subscribers helps prevent concerns about “endogeneity”, or reverse causality, which may bias the estimated values of programming minutes.³⁹ As discussed below, however, the use of a level or untransformed number of subscribers necessarily introduces a high level of distortion in the results of the regression. I test the effect of this distortion in one of my sensitivity tests, discussed below.

- 70 The coefficients of the regression equation are estimated (or identified) as a result of the variation within systems in a time period, as Dr. Crawford’s regression did. However, unlike Dr. Crawford’s regression, the variation within systems occurs at the station level rather than the subscriber group level, and certain other variables are inapplicable in the satellite context.
- 71 This Waldfoegel-type regression equation is given by the following equation where royalties in time t and station-satellite operator combination i are correlated with minutes for program categories c , subscribers in the previous accounting period ($t-1$), and potentially other control variables, \mathbf{Z} .

$$\ln(\text{Royalty}_{it}) = \alpha + \sum_c \beta_c \text{mins}_{c,it} + \gamma \text{Subscribers}_{i,t-1} + \mathbf{Z}\theta + \varepsilon_{it}$$

where β_c are the primary coefficients of interest and ε_{it} is the error term.

- 72 As I discussed earlier in this report, the royalty amount for each station in a given accounting period is calculated precisely by multiplying the per subscriber fee amount with the number of subscribers (separately for residential and commercial). In fact, by using the natural logarithm of royalties (as opposed to the untransformed, actual values for royalties), the perfect relationship (or correlation) between the dependent variable (royalties) and the independent variable (subscribers) is destroyed. As a result, the regression analysis “estimates” coefficients for the minute variables that supposedly “explain” the variation in the logarithm of royalties that is artificially created. Needless to say, the use of actual values for royalties produces statistically insignificant coefficients for all program categories as the effect of subscribers on royalties would be correctly controlled for. This criticism is not about hunting for a model with a higher R-squared value, as econometricians agree that it is not an objective, or the objective, in a regression analysis. This is rather about controlling for variables in an appropriate way, if they should be controlled for.

³⁹ *In re Distribution of Cable Royalty Funds, Corrected Written Direct Testimony of the Commercial Television Claimants Group*, Corrected Written Direct Testimony of Gregory S. Crawford, at A-3.

73 I must pause to say here that the purpose of a control for the level number of subscribers in Dr. Crawford's regression in the cable proceeding is entirely unclear to me. It necessarily introduces a substantial bias in the results, as it introduces a relationship that is clearly inconsistent with the known relationship between subscribers and fees paid. Therefore, the level number of subscribers cannot possibly remove the influence of the number of subscribers on the dependent variable, which is the purpose of having a control variable. So, if Dr. Crawford's purpose was to "control" for the effect of subscribers on fees paid, he should have used the natural logarithm of the distant subscribers. On the other hand, if his theory was based on a proposed relationship between fees paid and value (implicit in his response that a control for the logged number of subscribers merely "replicates" the formula for calculation of fees), then he should not have controlled for the number of subscribers at all. But, again, my purpose in this report is to adapt Dr. Crawford's specification as faithfully as I can. It was not my purpose to improve Dr. Crawford's specification, which I cannot do without an articulation of the theory by which the specification is supposed to relate the variation in fees paid to value.

74 Although it is less direct and clear, Dr. Crawford's regression analysis in the 2010-2013 cable proceeding suffered from the same obvious flaw. The only difference in cable is that the relationship between the royalties and distant subscribers is through gross receipts in the statutory formula (in addition to a few other nuances, such as the minimum fee), which is a function of distant subscribers.

VIII.C.2. Regression output

75 The coefficients for each of the key explanatory variables in the model, the minutes of each programming type, provide an estimate of the correlation between the number of minutes of the programming type and natural log of the royalties paid. In Dr. Crawford's regression in the cable proceeding, he excluded both the network minutes and off-air minutes variables from his regression analysis. In doing so, Dr. Crawford effectively combined the off-air and network programming categories. He also included variables representing the total of all categories (the number of distantly retransmitted stations and, in his "unduplicated" analysis, the total number of "unduplicated" minutes). Thus, whether or not it was his intent, the coefficients for the categories of minutes in Dr. Crawford's analysis (i.e., CTV, PS, Devotional, JS, CCG, PTV, TBA, and Unmerged) should be interpreted as the "effect" (a

term used in regression analysis to signify a relationship, but not necessarily implying causation) of an additional minute of that category's programming *relative to* the "effect" of an additional (combined) minute of off-air and network programming.⁴⁰

- 76 In the satellite case, where there is no need for a separate category for network programming, I excluded the category for off-air minutes only, meaning that the coefficients are estimated relative to off-air minutes.⁴¹ **Exhibit 9** provides the estimated coefficients and standard errors for the variables included in the satellite regression analysis.
- 77 All coefficients for the minute variables, except for JS, are positive and statistically significant using Dr. Crawford's method of calculating statistical significance. The coefficient for JS minutes is negative and statistically insignificant. If one were to interpret the coefficients as measures of marginal value, as Dr. Crawford did, this finding would imply that JS programming has no value (as the estimated coefficient is not statistically significant), or negative value (if one were to ignore the lack of statistical significance). This is a major difference compared to the findings from the cable proceeding, where the JS programming was found to have the highest coefficient.
- 78 The coefficient estimate for Devotional programming is the largest in magnitude (0.0001113) followed by CTV (0.0000702) and PS (0.0000641) while the coefficient of JS programming is the smallest (negative or zero). The magnitude of the Devotional coefficient estimate appears to indicate that the signals with more Devotional programming minutes tend to have more royalties on average than signals with fewer subscribers, all else being equal. The magnitude of the JS coefficient appears to indicate that signals with more JS minutes tend to have fewer royalties on average than signals with more JS minutes have (although the correlation is weak or nonexistent, as demonstrated by the statistical insignificance of the coefficient). The fact that the regression approach dictates a royalty allocation of \$0 (or less) to JS is further proof that a regression similar to Dr. Crawford's regression does not yield results that are related to value.

⁴⁰ To estimate an absolute effect, which is how Dr. Crawford seems to have treated his explanatory variables by assuming that the effect is equivalent to a measure of marginal value, one would have needed to include a variable for each category and to exclude the variables (like number of distantly retransmitted stations and total number of unduplicated minutes) that are closely related to the total number of minutes in all categories. This is the basic error that I acknowledged with respect to some of my sensitivity tests presented in the cable proceeding, and that infected *both* of Dr. Crawford's specifications in exactly the same way.

⁴¹ There is no network programming category for satellite because network programming is compensable, but categorized as PS, CTV, etc.

VIII.C.3. Share calculations

79 As discussed above, I rely on the same FYI data and minutes categorizations as Dr. Crawford did in the cable proceeding (with the adjustment for network minutes as discussed above). I use Dr. Crawford's methodology to convert coefficients to implied shares through a simple multiplication of the coefficient value, times category minutes, times fees paid.⁴² (The compensable minutes data in my share calculations is slightly different from Crawford's because network programming is compensable for satellite, as described above.) **Exhibit 10** shows the results of the royalty share calculations.⁴³ Once again, the results are much different than Dr. Crawford's findings in the cable proceeding. Most notably, JS has no share because of its statistically insignificant regression coefficient. If one were to ignore the statistical insignificance of the coefficient, then the JS share would be negative and the shares for remaining categories would total more than 100%. Although this would be consistent with Dr. George's approach in the 2010-2013 cable proceeding, which the Judges relied upon in setting the CCG cable royalty share, it introduces another level of philosophical absurdity that is not clearly compatible with econometric analysis.

80 It might be observed that the coefficients in the remaining categories, when converted to shares using Dr. Crawford's conversion methodology, yield results that are ordinally similar to Dr. Crawford's implied shares in the cable proceeding. But this is merely a function of the mechanics of Dr. Crawford's method of converting coefficients to shares, which involves a simple multiplication of the coefficient, times the volume of minutes, times fees paid. As long as coefficients are within an order of magnitude of each other, the implied shares will simply reflect relative volume, within an order of magnitude. Because the coefficients for Devotional, CTV, and PS programming are all within an order of magnitude under the satellite specification, and under both of Dr. Crawford's cable specification, the ordinal values of the shares based on Dr. Crawford's conversion merely reflect the relative volume of minutes, weighted by fees paid. Only the JS coefficient is outside an order of magnitude of the other category coefficients, in opposite directions for cable and satellite.

⁴² *In re Distribution of Cable Royalty Funds, Corrected Written Direct Testimony of the Commercial Television Claimants Group*, Corrected Written Direct Testimony of Gregory S. Crawford, at A-4 - A-5.

⁴³ I distribute the PTV shares in 2010 (approximately 0.03 percent in the baseline regression) proportionally across all other claimants in this proceeding.

- 81 In their final determination of royalty allocation in the 2010-2013 cable proceeding, the Judges agreed that both of the values that derive proposed royalty shares – total minutes and average value per minute – are both functions of volume, but determined that this value-per-minute is a “metric for relative value.” It is not clear to me why the coefficients from the Waldfogel-type regressions measure relative value that are based on a faulty specification. What is clear to me is that royalty shares suggested by Waldfogel-type regressions in the cable proceeding and my analysis in this report principally mimic the distribution of minutes, which is not a measure of value.
- 82 As I argue in this report, there are no apparent reasons why category valuations should differ markedly between the cable and satellite proceedings. The highly inconsistent results in the cable and satellite proceedings, particularly with regard to JS programming, but also with regard to Devotional programming, which went from having the smallest coefficient in cable to the largest coefficient in satellite, reinforces my view that the coefficients are reflective of a relationship that has nothing to do with value.
- 83 The findings from this regression analysis are consistent with the descriptive analyses I present in **Exhibit 4**. What the regression is measuring is simply the correlation between subscribers and minutes of programming (as the dependent variable, natural logarithm of royalties, is a function of subscribers), which is not a measure of value. For example, the negative correlation between minutes of JS programming and subscribers (**Exhibit 4**) in satellite does not mean that JS should not receive anything from the royalty pool. Given that minutes of programming have nothing to do with the royalties paid by cable and satellite systems (as royalties are related to subscribers directly in satellite and indirectly in cable through gross receipts) and the coefficients for program categories in Waldfogel-type regressions measure correlations between total minutes and total subscribers, these Waldfogel-type regressions fail to be useful in these proceedings.

VIII.D. Sensitivity Analysis

- 84 I conduct several analyses to examine how sensitive the results of the regression I present are to changes in model specification. In **Exhibit 11** (for regression estimates) and **Exhibit 12** (for implied royalty shares) below, I present the results of these analyses.
- 85 In the first sensitivity analysis, I control for the total minutes available on a station in an accounting period. This test more perfectly replicates Dr. Crawford’s inclusion of variables

for the number of distantly retransmitted stations in both of his specifications and his inclusion of total “unduplicated” minutes in his alternative specification.

- 86 Given that the total number of minutes on a station cannot exceed the total time available in an accounting period, adding this variable would indicate that minutes for a claimant category cannot be increased without decreasing minutes for another claimant, including the omitted category. The effect of this additional control variable on the coefficients of the minute variables and the implied shares is insignificant. As noted above, my omitted category is for off-air minutes (similar to Dr. Crawford’s omitted category combining off-air minutes and network minutes). The insignificant effect of the inclusion of a total minutes variable is mainly due to the fact that only about 8 percent of the observations in the underlying data have positive off-air minutes and the correlation of off-air minutes with the minutes of any of the other program categories is very low.
- 87 In the second sensitivity analysis, I use the natural logarithm of the number of subscribers (in the previous period) instead of the number of subscribers. As noted above, the rationale for this specification would require a theory that variation in “value” is based on something other than variation in the number of subscribers, and is suggested by Dr. Crawford’s inclusion of a variable for the lagged number of distant subscribers (suggesting a misguided implementation of an intent to remove the influence of the number of subscribers). Given that there is a direct relationship between the number of subscribers and royalty payments, this creates an almost perfect relationship (R-squared of 0.98) between the dependent variable (natural logarithm of royalty amount) and the natural logarithm of the number of subscribers making all other coefficients statistically insignificant. In other words, there is no statistically significant relationship between the various minute variables and the royalty payments amounts once the subscribers are controlled for in the regression. This is consistent with my finding presented in the cable proceeding that inclusion of a variable for log-subscribers substantially “pulls down” the coefficients of the explanatory variables (and, among other things, reduced the CTV implied share to near-zero).
- 88 In the next sensitivity analysis, I remove the lagged number of subscribers from the equation to allow for estimation of the coefficients for the minute variables without controlling for subscribers. As noted above, the rationale for this specification would require a theory that the variation in “value” is based in whole or in part on variation in the number of subscribers,

and is suggested by Dr. Crawford's response to my criticism of his inclusion of only the level number of lagged subscribers, claiming that it merely "replicates" the royalty fee formula (a point with which I agree, insofar as I assumed that Dr. Crawford's purpose in including this variable was to control for its effect on the dependent variable). With the removal of the lagged subscribers variable, the magnitudes of all other positive coefficients increase, but the coefficient for Devotional increases more than PS and CTV. As a result, the implied royalty share for Devotional in this sensitivity is higher than in the main (baseline) model.

89 In calculating statistical significance of coefficients, I noticed that Dr. Crawford clustered errors at the system-accounting period level, which effectively assumes that the number of category minutes retransmitted by a system is independent from one accounting period to another (i.e., that system's determination of what to retransmit in each accounting period is completely independent of its determination of what to retransmit in the accounting period before). This implicit assumption struck me as absurd, as a cursory review of the data shows that a system's retransmissions tend to be highly consistent from one accounting period to another, and witnesses have testified that systems prefer not to drop retransmissions of stations carried. I therefore perform an additional sensitivity analysis by clustering errors at the system level, instead of the system-accounting period level, thereby allowing correlation of errors over time. The coefficients for the minute variables in all categories except for JS remain statistically significant, but standard errors increase dramatically (PS and CTV close to doubling, and JS and Devotional more than doubling), suggesting that Dr. Crawford's clustering methodology tends to overstate precision.

90 As another sensitivity analysis, I perform one regression without fixed effects, but with dummy variables for both systems and accounting periods. This model allows system and accounting period to vary *separately*, whereas in the fixed effects model, system and accounting period vary jointly. Once again, the coefficients for the minute variables in all categories except for JS remain statistically significant, but change slightly.

91 As a final sensitivity analysis, I perform a regression using the actual value of royalties, as mentioned above. As expected, the coefficients for all categories are insignificant, as the effect of subscribers on royalties is correctly controlled for.

92 I will note that although there are fewer observations in the satellite data than in the cable data, there are also far fewer systems. Therefore, the use of system-accounting period fixed

effects does not run afoul of the “one-in-ten” rule (a rule of thumb suggesting that a regression specification should generally have no more than one variable for every ten observations). I therefore do not have a concern that the specification is overfitted in the context of the satellite data.

93 Relatedly, I have consumed no “phantom degrees of freedom” except for any “phantom degrees of freedom” consumed by Dr. Crawford in the creation of his specifications. I have presented the results of every specification I attempted in trying to adapt Dr. Crawford’s specification to the satellite context.

94 Unsurprisingly, given the manner in which fees are calculated, the regression is highly sensitive to changes relating to the variable for the number of subscribers. If one allows for the possibility of introducing variables that conflict with a true, known relationship with the dependent variable (including variables that incorporate the number of subscribers or that are interacted with the number of subscribers), and if one allows for the possibility of experimenting with undisclosed specifications, a truly infinite number of results could be reached. This is especially true if one is willing to ignore indicia of goodness of fit, like R-squared and statistical significance (or clustering errors at inappropriate levels, thereby overstating statistical significance), which would thereby permit the generation of random results. This is why econometricians normally would not include a control variable with a known relationship to the dependent variable unless the purpose is to remove the influence of that relationship. A specification that imperfectly matches a control variable with the dependent variable will necessarily introduce distortion, and not control.

IX. Conclusion

95 For all of these reasons, I cannot conclude that a fee-based regression like Dr. Crawford’s can be useful in estimating value in this satellite allocation proceeding.⁴⁴ It has no relationship to value, even in theory. It yields absurd results when faithfully adapted to the satellite data. It overstates precision. And the inclusion of variables in ways that do not match their true, known relationship to the dependent variable renders the results uninterpretable, sensitive, and highly manipulatable. It is not a valuation methodology. With any amount of

⁴⁴ And I continue to believe the Crawford methodology should not be used as a principal methodology in the cable allocation proceeding.

experimentation unmoored from an articulated theory, it can become merely a mechanism for generating results that the analyst expects or desires.

96 So, although it may be tempting to argue that the Judges should base the satellite allocation on their cable allocation, I cannot make such an argument except to the limited extent that the cable allocation was based on survey results, and the niche value of devotional content. From an econometric perspective, the regression specification on which the Judges principally based their cable allocation is unreliable as a measure of value in this proceeding or in any other.

X. Declaration of Erkan Erdem

I declare under penalty of perjury that the foregoing testimony is true and correct, and of my personal knowledge.

Executed on March 22, 2019



Erkan Erdem

Exhibit 1: Curriculum Vitae



ERKAN ERDEM

Principal

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McLean, Virginia 22102

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Fax 703-935-8887
Cell 240-461-2265
erkanerdem@kpmg.com

Function and Specialization

Dr. Erkan Erdem is a Principal in KPMG's Economic and Valuation Services (EVS) practice. Dr. Erdem has twelve years of research and consulting experience.

Representative Clients

- Pillsbury Law
- Lutzker and Lutzker
- CMS, CCIIO, CMMI

Education, Licenses & Certifications

- PhD in Economics, The Pennsylvania State University
- BS in Mathematics, Koç University, Istanbul
- BA in Economics, Koç University, Istanbul

Programming Skills

Matlab, STATA, Gauss, SAS, C, C++, and Tableau

Background

Dr. Erdem is an economist with expertise in program evaluation, antitrust matters, policy analysis, statistical modeling, econometrics, and data analytics. He teaches graduate-level econometrics at University of Maryland as an Adjunct Professor. Prior to KPMG, he worked as an antitrust economist and prepared expert reports on mergers and acquisitions, monopolization disputes, market power and concentration issues, and cartels. He has worked closely with clients including leading law firms, Fortune 500 companies, and government agencies on a number of projects.

Employment History

KPMG LLP

Principal

Managing Director

Senior Manager

October 2018 – Present

October 2016 – September 2018

September 2013 – September 2016

University of Maryland

Adjunct Professor, Department of Economics

May 2012 - Present

IMPAQ International LLC

Senior Research Associate

June 2010 – September 2013

Bates White LLC

Economist, Antitrust Division

June 2006 – March 2010

Professional and Industry Experience

- Assisting counsel with determining relative market value of programs that are retransmitted in the distant markets.
- Assisting the Centers for Medicare & Medicaid Services (CMS) Office of Minority Health (OMH) with data analytic support related to identifying high risk populations and reducing health disparities for minority and disadvantaged populations.
- Assisting client with analyses of Medicare and Medicaid claims databases to examine the prevalence and examination rates for vision and eye diseases for the Centers for Disease Control and Prevention (CDC).
- Assisted the audit of a Medicare advantage plan by reviewing data submission procedures and the Risk Adjustment Processing System (RAPS) data preparation steps (i.e., inclusion/exclusion criteria detailed in the CMS Medicare Managed Care Manual for data submission).
- Assisted a large healthcare provider with developing an Accountable Care Organization (ACO) strategy and operations planning through modeling and claims analyses.
- Assisted the Center for Consumer Information and Insurance Oversight (CCIIO) with the review and evaluation of the financial performance of the

Professional Associations

AEA, APHA, ASA, and
AcademyHealth

State-based Marketplaces (SBMs). Developed algorithms and applied text mining techniques to improve quality of data.

- Assisted CCIIO with verification of employer-sponsored coverage and analysis of advance payments of the premium tax credits (APTCs) granted for health coverage purchased through the Federally-facilitated Marketplace. Designed and led the implementation of survey for a random sample of applicants and their employers to conduct the study.
- Supported the New York State Department of Health (NYDOH) Delivery System Reform Incentive Payment (DSRIP) Program with community needs assessments and definition of target populations for healthcare providers' project plan applications. Conducted analyses of healthcare utilization using Medicaid and all-payer claims databases for NYDOH. Analyzed cost and quality of care measures at the provider- and county-level to assess the needs of the population in a "value" based approach.
- Supported Health Services Cost Review Commission (HSCRC) and Chesapeake Regional Information System for our Patients (CRISP) with the implementation of the state's All-Payer Model as well as analyses of financial and clinical databases as part of the new Medicare waiver with the CMS.
- Led the technical efforts in the Comparative Effectiveness Research (CER) Public Use Data Pilot Project for CMS to create de-identified Public Use files (PUFs) using Medicare claims data. Led a team of economists and statisticians to generate samples of Medicare beneficiaries, link and process enrollment and claims data sets, and apply various statistical disclosure limitation techniques to prepare analytic files that meet HIPAA standards.
- Evaluated the performance of over 1,000 hospitals in the U.S. in the National Content Developer Project for CMS. The data elements covered patient safety culture, measurement of health care processes and outcomes, infection control, procedures, medications, nursing practices, communication.
- Investigated the response rates in the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey using a predictive regression model and reported the findings to CMS with recommendations for future surveys.
- Provided analyses for the liability and the damages experts for AMD Inc. in the exclusionary conduct litigation of Intel Corp. (AMD Inc. vs. Intel Corporation).
- Estimated damages to
 - Novell, Inc. in the Microsoft monopolization litigation (In re Microsoft Corp. Antitrust Litigation).
 - Purchasers in the price-fixing litigation of global rubber chemicals manufacturers (In re Rubber Chemicals Antitrust Litigation).
 - Purchasers of hypodermic products in a foreclosure litigation involving a major medical supplies company.
- Analyzed the competitive effects of a merger in oil refining and liquor distribution industries in the U.S.
- Developed a methodology and a simulation model to estimate damages in Section II (i.e., monopolization) cases.

- Provided economic analyses related to the calculation of water price in an international arbitration case.
- Analyzed market power of Shell Trading Gas & Power Company in proceedings before the Federal Energy Regulatory Commission (FERC).
- Conducted a review of the econometric modeling in the Enron bankruptcy litigation.

Testifying Experience

- In the Matter of Phase II Distribution of the 1998 and 1999 Cable Royalty Funds, Docket No. 2008-1 CRB CD 1998-1999 (Phase II) (Copyright Royalty Board).
- In the Matter of Phase II Distribution of the 2004-2009 Cable Royalty Funds, Docket No. 2012-6 CRB CD 2004-2009 (Phase II) (Copyright Royalty Board).
- In the Matter of Phase II Distribution of the 1999-2009 Cable Royalty Funds, Docket No. 2012-7 CRB SD 1999-2009 (Phase II) (Copyright Royalty Board).
- In the Matter of Distribution of the 2010-2013 Cable Royalty Funds, Docket No. 14-CRB-0010-CD (2010-2013) (Copyright Royalty Board).

Publications and Research Papers

- Christina N. Dragon, Alison M. Laffan, Erkan Erdem, Sean Cahill, Daniel Kenefick, Jiahui Ye, Samuel C. Haffer. “Health Indicators for Older Sexual Minorities: National Health Interview Survey, 2013–2014. *LGBT Health*. October 2017.
- Erdem, E., Korda, H. “Prevalence and Spending on Diabetes for Medicare’s Fee-for-Service Population: US Trends, 2010.” *Chronic Diseases - International*. 2014;1(2): 2.
- Erdem, E. “Prevalence of Chronic Conditions Among Medicare Part A Beneficiaries in 2008 and 2010: Are Medicare Beneficiaries Getting Sicker?” *Preventing Chronic Disease*. 2014;11:130118.
- Erdem, E., Korda, H., Woodcock, C., and Pedersen, S. “Racial and Ethnic Minority Participants in Chronic Disease Self-Management Programs (CDSMP): Findings from the Communities Putting Prevention to Work Initiative.” *Ethnicity and Disease*. Vol. 23. Autumn 2013.
- Erdem, E., Korda, H., Sennett, C., and Haffer CS. “Medicare Claims Data as Public Use Files: A New Tool for Public Health Surveillance. *Journal of Public Health Management & Practice*. 2014: 20(4), 445-452.
- Erdem, E. and Korda, H. “Self-Management Program Participation by Older Adults with Diabetes: Chronic Disease Self-Management Program (CDSMP) and Diabetes Self-Management Program (DSMP).” *Family and Community Health*. April/June 2014. Vol. 37 (2):134–146.
- Erdem, E., Fout, B., Korda, H., and Abolude, A. “Hospital Readmission Rates in Medicare.” *Journal of Hospital Administration*. 2014: Vol. 3, No. 4.
- Erdem, E. and Holly Korda. “Medicare Fee-for-Service Spending for Diabetes: Examining Aging and Co-morbidities.” *Journal of Diabetes and Metabolism*. 2014: Vol. 5, No. 3.

- Erdem, E., Prada, S. and Haffer, C. “Medicare Payments: How much Do Chronic Conditions Matter?” *Medicare and Medicaid Research Review*. 2013: Vol. 3, No. 2.
- Erdem, E., Korda, H., Woodcock, C., and Pedersen, S. “From Participation to Completion: Older Adults in the Communities Putting Prevention to Work—Chronic Disease Self-Management Program (CDSMP) Initiative.” Working Paper, March 2013.
- Erdem, E. and Thomas W. Concannon. “What Do Researchers Say about Proposed Medicare Claims Public Use Files?” *Journal of Comparative Effectiveness Research*, November 2012, Vol. 1, No. 6, pp. 519-525.
- Erdem, E. and Sergio Prada. “Creation of Public Use Files: Lessons Learned from the Comparative Effectiveness Research Public Use Files Data Pilot Project.” Joint Statistical Meeting Proceedings, Government Statistics Section. Alexandria, VA: American Statistical Association, 2011.
- Erdem, E. and James Tybout. “Trade Policy and Industrial Sector Responses: Using Evolutionary Models to Interpret the Evidence.” *Brookings Trade Forum* 2003, pp. 1-43.

Conference Presentations

- Erdem, E. “Using CMS Medicare Data to Understand Disparities.” CMS Quality Conference, Baltimore, MD, December 2016.
- Erdem, E. “Catching Everyone in America’s Safety Net: Advancing SGM Research and Data at CMS and SAMHSA.” 34th GLMA Annual Conference, St. Louis, MO, September 2016.
- Erdem, E. “Sexual Orientation and Health Outcomes in the U.S. Medicare Aged Population: National Health Interview Survey, 2013-2014.” Joint Statistical Meetings, Chicago, IL, August 2016.
- Erdem, E. “Visualizing Disparities: Using a Chronic Disease Mapping Tool to Drive Quality Improvement.” CMS Quality Conference, Baltimore, MD, December 2015.
- Erdem, E. “From Participant to Completer: Understanding Completion Rates among Older Adults in the Chronic Disease Self- management Program.” American Public Health Association Annual Meeting, Boston, MA, November 2013.
- Erdem, E., Singh, A., and Borton, J. “Aggregate Level Public Use Files with High Data Confidentiality and Analytic Utility for Descriptive Analyses from Medicare Claims Data.” Joint Statistical Meetings, Montreal, QC, August 2013.
- Erdem, E. “Medicare Public Use Files for Research, Training, and Innovation.” Panel Chair. AcademyHealth 2013 Annual Research Meeting, Baltimore, MD, June 2013.
- Erdem, E. “Chronic Conditions and U.S. Health Care.” American Public Health Association Annual Meeting, San Francisco, CA, October 2012.

- Erdem, E. “Getting the DIRT [Data for Innovation, Research, and Transparency] on Medicare and Medicaid Public Use Files.” AcademyHealth 2012 Annual Research Meeting, Orlando, FL, June 2012.
- Erdem, E. “An Introduction to Medicare Claims Public Use Files (PUFs).” AcademyHealth Methods Webinar Series, July 26 and August 9, 2011.
- Erdem, E. “Creation of Public Use Files: Lessons Learned from the Comparative Effectiveness Research Public Use Files Data Pilot Project.”
 - American Evaluation Association Meeting, Anaheim, CA, November 2011.
 - Joint Statistical Meetings, Miami Beach, FL, August 2011.
- Erdem, E. “CMS Public Use Files for Comparative Effectiveness Research”, AcademyHealth Annual Research Meeting Innovation Center, Seattle, WA, June 2011.

Exhibit 2: Materials Considered

I have obtained, reviewed, and used the following documents and data files during the preparation of this testimony:

- Satellite Statement of Accounts for 2010-2013 from Cable Data Corporation.
- Cable Statement of Accounts for 2010-2013 from Cable Data Corporation.
- Corrected Written Direct Testimony of the Commercial Television Claimants Group, *In re Distribution of Cable Royalty Funds*, and all underlying data produced.
- Written Direct Statement of the Joint Sports Claimants, *In re Distribution of Cable Royalty Funds*, and all underlying data produced.
- Written Direct Statement Regarding Allocation Methodologies of Program Suppliers, *In the Matter of Distribution of the 2010, 2011, 2012, and 2013 Cable Royalty Funds*, and all underlying data produced.
- Final Determination of Royalty Allocation, *In re Distribution of Cable Royalty Funds*.
- Competitive Impact Statement, *United States v. Comcast Corp. et al*, 808 F. Supp. 2d 145 (D.C. Cir., (2011)).
- Eighteenth Report Before the Federal Communications Commission, *In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 16-247 (2017).

Exhibit 3: Comparison of Cable Distant Subscribers and Satellite Subscribers

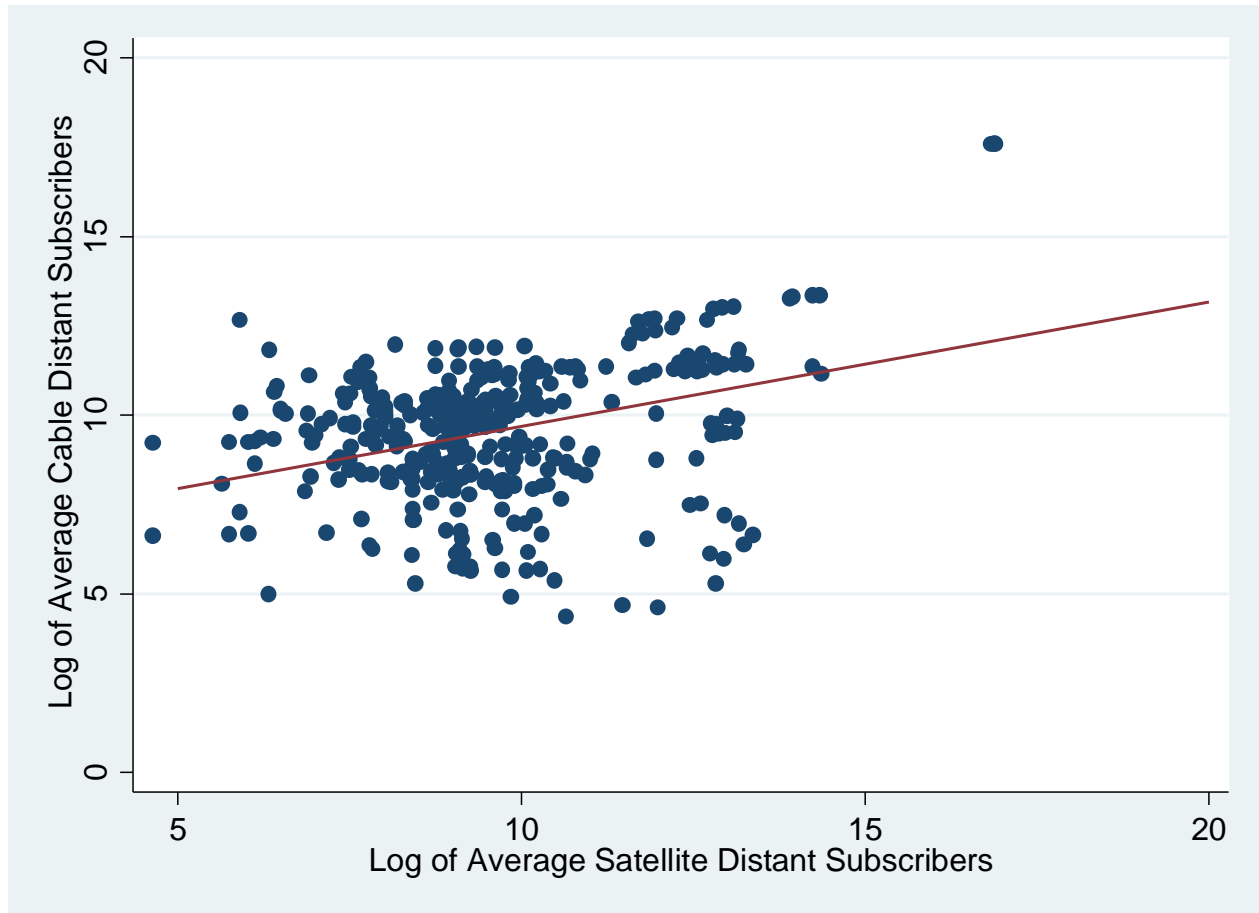
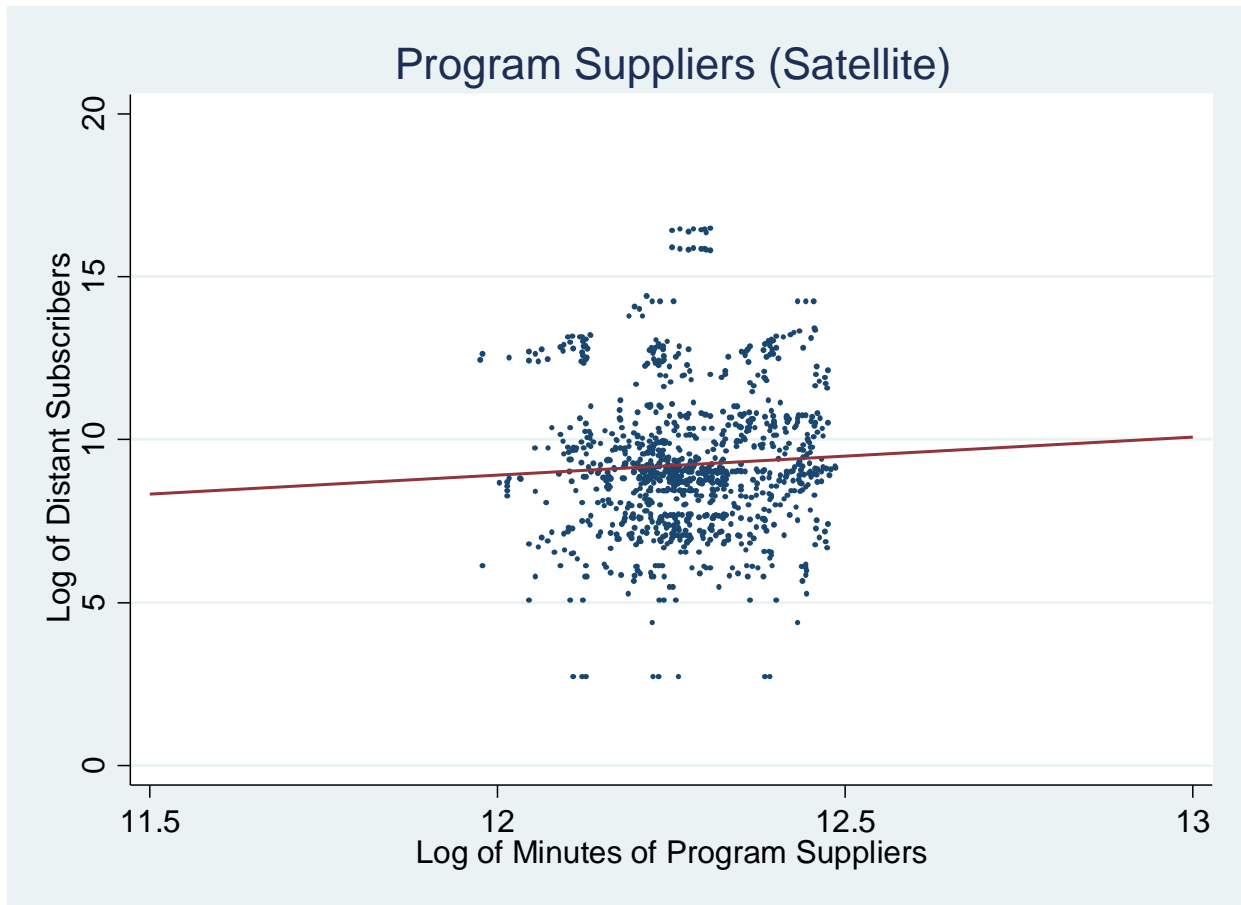
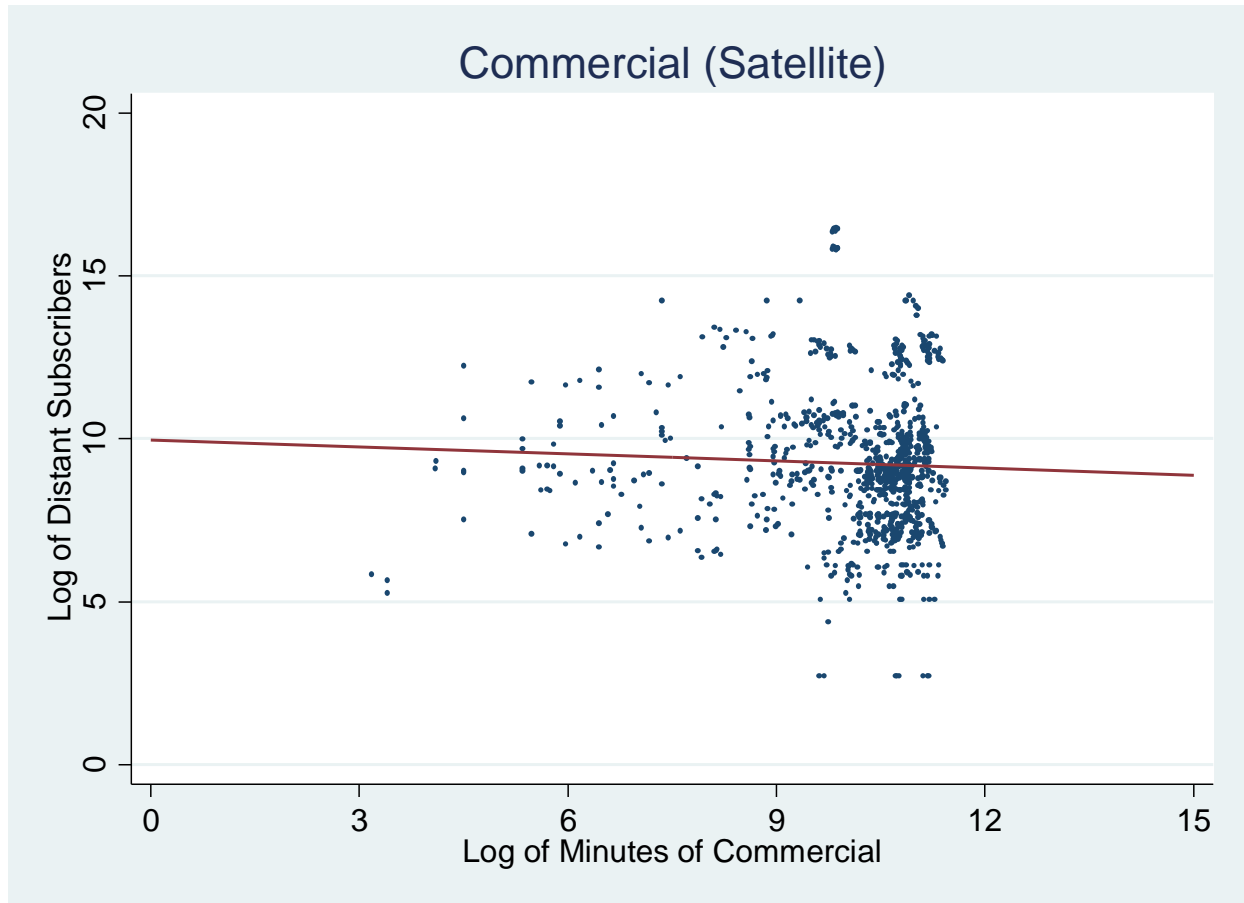
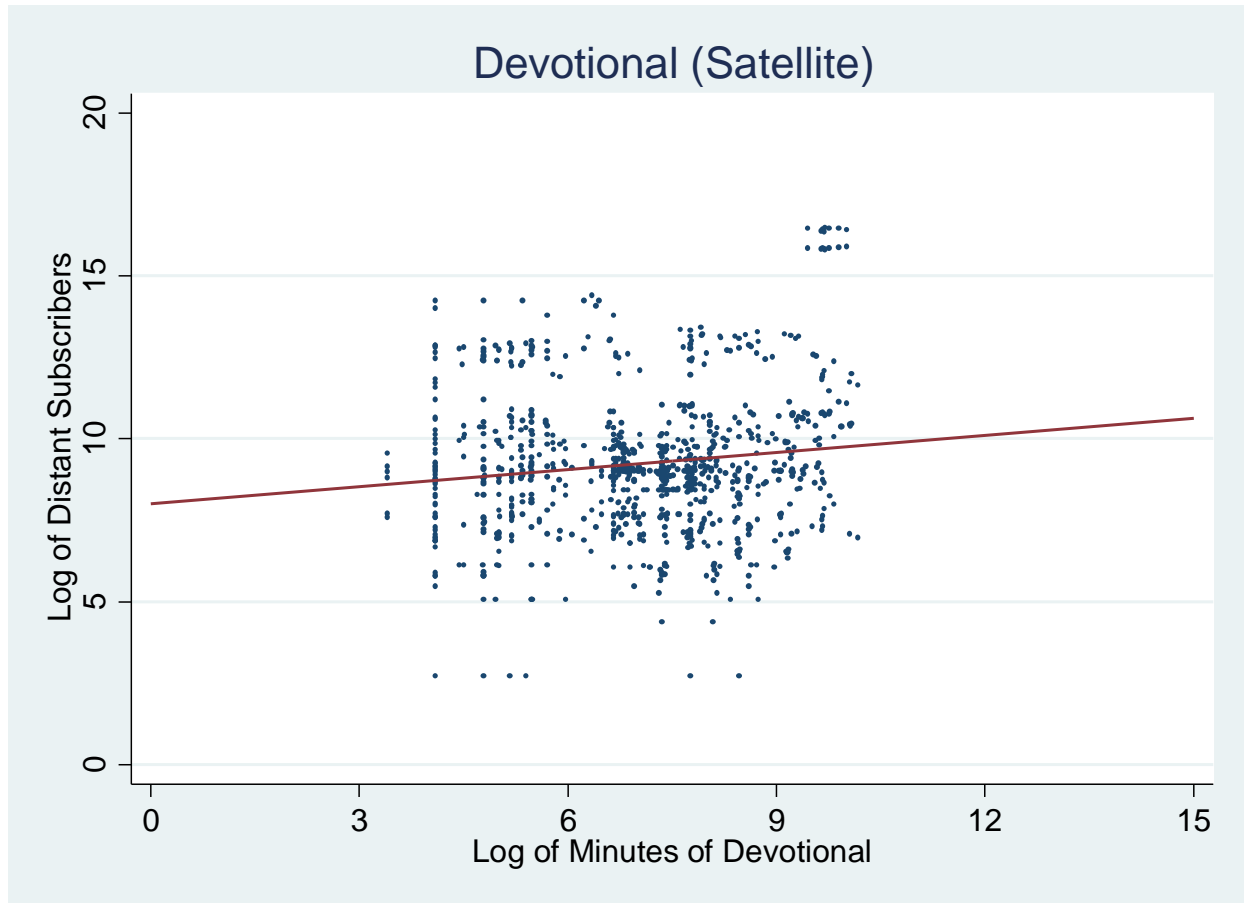


Exhibit 4: Comparison of Log Subscribers to Log Minutes by Claimant Group







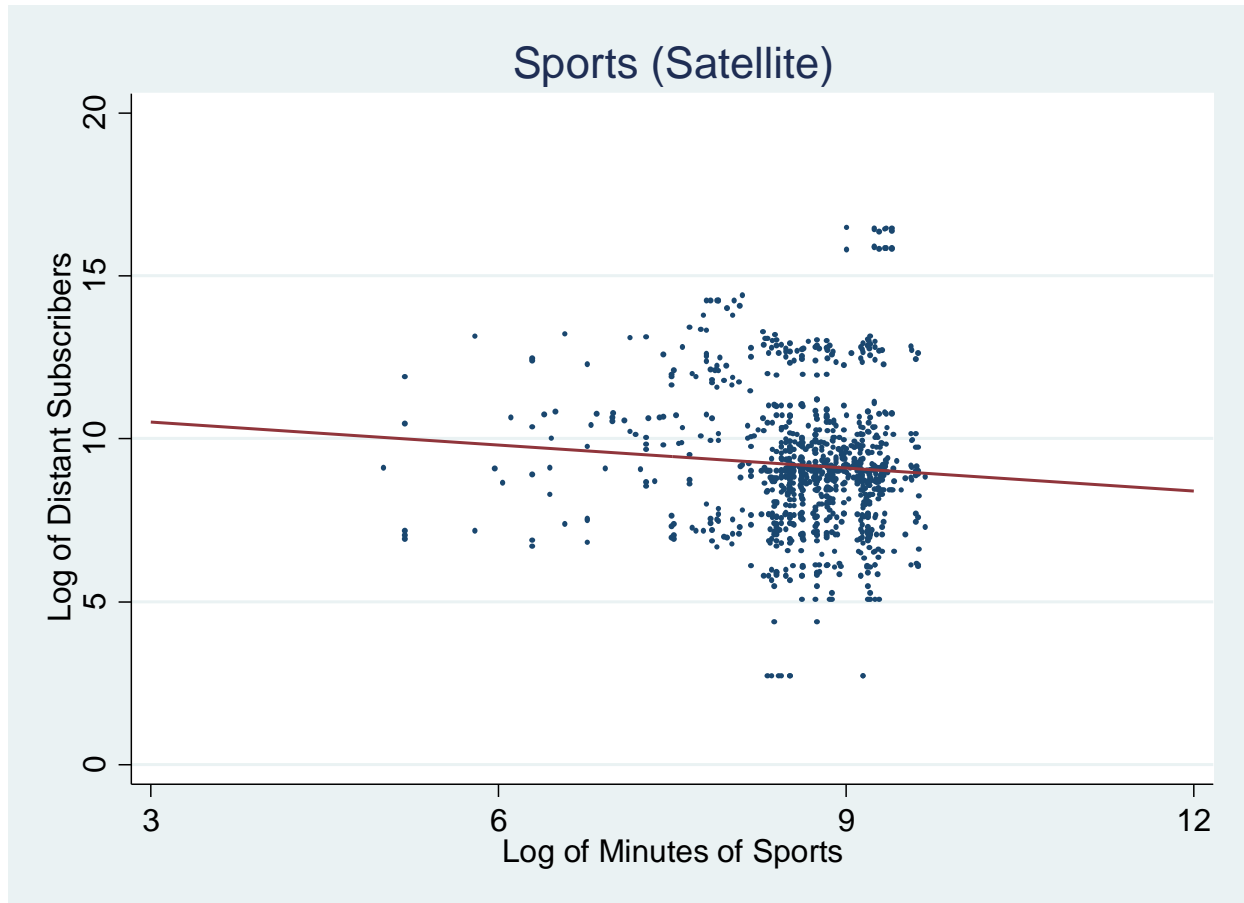


Exhibit 5: Average Incremental Cost of Retransmission in Cable

Accounting Period	Average Cost Per Distant Subscriber Per Station	Weighted Average Cost Per Distant Subscriber Per Station
2010-1	\$0.16	\$0.08
2010-2	\$0.15	\$0.09
2011-1	\$0.14	\$0.08
2011-2	\$0.14	\$0.08
2012-1	\$0.14	\$0.08
2012-2	\$0.12	\$0.07
2013-1	\$0.13	\$0.07
2013-2	\$0.12	\$0.07
Total	\$0.14	\$0.08

Exhibit 6: Adjusted Bortz Survey Results

Claimant	Year	Bortz	Bortz (WGNA-only respondents)	Bortz (PTV and CCG Redistributed at Survey Level) ⁴⁵	Bortz (PTV and CCG Redistributed at Claimant Level) ⁴⁶
Program Suppliers	2010	31.90%	33.25%	33.22%	33.40%
	2011	36.00%	37.35%	36.47%	37.85%
	2012	28.80%	26.02%	30.74%	30.54%
	2013	27.30%	24.38%	29.42%	29.48%
	2010-2013	31.00%	30.23%	32.44%	32.82%
Joint Sports	2010	40.90%	46.13%	41.87%	42.83%
	2011	36.40%	44.05%	38.52%	38.27%
	2012	37.90%	47.89%	39.96%	40.19%
	2013	37.70%	46.83%	40.50%	40.71%
	2010-2013	38.20%	46.30%	40.21%	40.50%
Commercial TV	2010	18.70%	16.89%	20.31%	19.58%
	2011	18.30%	15.46%	20.18%	19.24%
	2012	22.80%	21.84%	24.08%	24.18%
	2013	22.70%	24.45%	24.30%	24.51%
	2010-2013	20.60%	19.59%	22.24%	21.88%
Devotional	2010	4.00%	3.74%	4.60%	4.19%
	2011	4.50%	3.14%	4.83%	4.73%
	2012	4.80%	4.24%	5.22%	5.09%
	2013	5.00%	4.35%	5.78%	5.40%
	2010-2013	4.60%	3.88%	5.11%	4.85%

⁴⁵ The PTV and CCG shares for each survey respondent were redistributed to PS, JS, CTV, and Devotional, and then averaged to calculate the new shares by claimant and year.

⁴⁶ The final Bortz PTV and CCG shares in each year were redistributed to PS, JS, CTV, and Devotional to calculate the new shares by claimant and year.

Exhibit 7: Adjusted Horowitz Survey Results

Claimant	Year	Horowitz	Horowitz (WGNA- only respondents)	Horowitz (PTV, Canadian, and Other Sports Redistributed at Survey Level) ⁴⁷	Horowitz (PTV, Canadian, and Other Sports Redistributed at Claimant Level) ⁴⁸
Program Suppliers	2010	44.20%	55.83%	43.58%	43.76%
	2011	39.79%	41.98%	38.73%	38.72%
	2012	37.13%	51.06%	37.34%	37.44%
	2013	36.05%	60.54%	37.35%	37.23%
	2010-2013	39.29%	52.35%	39.25%	39.29%
Joint Sports	2010	31.94%	35.60%	37.33%	37.35%
	2011	27.13%	39.72%	36.27%	36.23%
	2012	25.50%	30.71%	34.02%	33.97%
	2013	35.28%	29.75%	45.62%	45.85%
	2010-2013	29.96%	33.94%	38.31%	38.35%
Commercial TV	2010	12.38%	4.83%	14.60%	14.47%
	2011	12.85%	13.21%	17.13%	17.15%
	2012	15.72%	11.43%	21.00%	20.94%
	2013	9.54%	5.83%	12.46%	12.40%
	2010-2013	12.62%	8.83%	16.30%	16.24%
Devotional	2010	3.78%	3.74%	4.50%	4.42%
	2011	5.92%	5.09%	7.87%	7.90%
	2012	5.74%	6.80%	7.64%	7.65%
	2013	3.48%	3.88%	4.56%	4.52%
	2010-2013	4.73%	4.88%	6.14%	6.12%

⁴⁷ The PTV, CCG, and “Other Sports” shares for each survey respondent were redistributed to PS, JS, CTV, and Devotional, and then averaged to calculate the new shares by claimant and year.

⁴⁸ The final Horowitz PTV, CCG, and “Other Sports” shares in each year were redistributed to PS, JS, CTV, and Devotional to calculate the new shares by claimant and year.

Exhibit 8: Average Number of Stations and Systems by Accounting Period

Year	Number of Stations	Number of Systems
2010	103	5
2011	95	4
2012	91.5	4
2013	79.5	4

Exhibit 9: 2010-2013 Satellite Regression Results

Variable Description	Baseline
Minutes of Program Suppliers	0.0000641*** (0.0000071)
Minutes of Joint Sports	-0.0000403 (0.0000404)
Minutes of Commercial TV	0.0000702*** (0.0000078)
Minutes of Public TV	0.0000604*** (0.0000080)
Minutes of Devotional	0.0001113*** (0.0000139)
Number of subscribers in previous accounting period	0.0000007*** (0.0000001)
Minutes of Unmerged	0.0000707*** (0.0000078)
Minutes of TBA	-0.0000144 (0.0002014)
Constant	-7.161125*** (2.0573262)
Number of Observations	1,047
R-Squared	0.29

* p<0.1; ** p<0.05; *** p<0.01

Values below coefficient estimates are standard errors.

Exhibit 10: Satellite Royalty Shares Using Regression Approach

Year	Joint Sports	Program Suppliers	Commercial TV	Devotional
2010	0.00%	71.58%	24.55%	3.87%
2011	0.00%	70.89%	26.06%	3.05%
2012	0.00%	64.01%	33.15%	2.83%
2013	0.00%	64.82%	32.69%	2.49%
2010-2013	0.00%	68.41%	28.44%	3.14%

Exhibit 11: Results of Satellite Regression Sensitivity Analyses

Variable Description	Baseline	Add Total Minutes	Log Subscribers	No Subscribers	Baseline with System Clustered Errors	Regression with System and Acct. Period Dummies	Actual Value of Royalties
Minutes of Program Suppliers	0.0000641*** (0.0000071)	0.0000642*** (0.0000071)	-0.0000009 (0.0000024)	0.0000793*** (0.0000075)	0.0000641*** (0.0000142)	0.0000684*** (0.0000118)	0.0380707 (0.1271540)
Minutes of Joint Sports	-0.0000403 (0.0000404)	-0.0000403 (0.0000404)	-0.0000012 (0.0000042)	0.0000255 (0.0000425)	-0.0000403 (0.0001074)	-0.0000345 (0.0000230)	1.1740468 (1.8035277)
Minutes of Commercial TV	0.0000702*** (0.0000078)	0.0000703*** (0.0000079)	-0.0000004 (0.0000029)	0.0000853*** (0.0000082)	0.0000702*** (0.0000152)	0.0000740*** (0.0000118)	-0.1495788 (0.1685889)
Minutes of Public TV	0.0000604*** (0.0000080)	0.0000604*** (0.0000080)	-0.0000007 (0.0000025)	0.0000769*** (0.0000084)	0.0000604** (0.0000166)	0.0000646*** (0.0000121)	0.0471902 (0.1483944)
Minutes of Devotional	0.0001113*** (0.0000139)	0.0001114*** (0.0000139)	-0.0000058 (0.0000044)	0.0002081*** (0.0000129)	0.0001113** (0.0000303)	0.0001152*** (0.0000190)	-0.8348249 (1.1134668)
Number of subscribers in previous accounting period	0.0000007*** (0.0000001)	0.0000007*** (0.0000001)			0.0000007** (0.0000002)	0.0000007*** (0.0000000)	1.5488535*** (0.0081766)
Log of number of subscribers in previous accounting period			1.0600381*** (0.0232739)				
Minutes of Unmerged	0.0000707*** (0.0000078)	0.0000707*** (0.0000078)	-0.0000011 (0.0000027)	0.0000873*** (0.0000082)	0.0000707*** (0.0000161)	0.0000755*** (0.0000123)	-0.0533295 (0.2049031)
Minutes of TBA	-0.0000144 (0.0002014)	-0.0000139 (0.0002016)	0.0000129 (0.0000158)	-0.0000756 (0.0002142)	-0.0000425 (0.0001220)	-0.0000709 (0.0001500)	5.8053410 (7.0338335)
Total Minutes		-0.0000540 (0.0001164)					
Constant	-7.161125*** (2.0573262)	7.0243730 (30.356017)	-0.0454919 (0.5389119)	-11.52553*** (2.1603384)	-7.1611251 (4.2798836)	-10.77369*** (3.0989694)	-14520.08 (39597.84)
Accounting period dummies	No	No	No	No	No	Yes	No
System dummies	No	No	No	No	No	Yes	No
Number of Observations	1,047	1,047	1,047	1,047	1,047	1,047	1,047
R-Squared	0.29	0.29	0.98	0.12	0.29	0.41	0.997

* p<0.1; ** p<0.05; *** p<0.01. Values below coefficients are standard errors.

Exhibit 12: Shares Implied by Satellite Regression Sensitivity Analyses

Model	Year	Joint Sports	Program Suppliers	Commercial TV	Devotional
Baseline	2010	0.00%	71.58%	24.55%	3.87%
	2011	0.00%	70.89%	26.06%	3.05%
	2012	0.00%	64.01%	33.15%	2.83%
	2013	0.00%	64.82%	32.69%	2.49%
	2010-2013	0.00%	68.41%	28.44%	3.14%
Add Total Minutes	2010	0.00%	71.58%	24.55%	3.87%
	2011	0.00%	70.89%	26.06%	3.05%
	2012	0.00%	64.01%	33.15%	2.83%
	2013	0.00%	64.82%	32.69%	2.49%
	2010-2013	0.00%	68.41%	28.44%	3.14%
Log Subscribers	2010	NA	NA	NA	NA
	2011	NA	NA	NA	NA
	2012	NA	NA	NA	NA
	2013	NA	NA	NA	NA
	2010-2013	NA	NA	NA	NA
No Subscribers	2010	0.00%	70.51%	23.73%	5.76%
	2011	0.00%	70.14%	25.30%	4.56%
	2012	0.00%	63.48%	32.27%	4.25%
	2013	0.00%	64.39%	31.88%	3.73%
	2010-2013	0.00%	67.68%	27.62%	4.70%
Baseline with System Clustered Errors	2010	0.00%	71.58%	24.55%	3.87%
	2011	0.00%	70.89%	26.06%	3.05%
	2012	0.00%	64.01%	33.15%	2.83%
	2013	0.00%	64.82%	32.69%	2.49%
	2010-2013	0.00%	68.41%	28.44%	3.14%
Regression with System and Acct. Period Dummies	2010	0.00%	71.89%	24.34%	3.77%
	2011	0.00%	71.19%	25.83%	2.97%
	2012	0.00%	64.34%	32.90%	2.77%
	2013	0.00%	65.14%	32.43%	2.43%
	2010-2013	0.00%	68.73%	28.21%	3.06%
Actual Value of Royalties	2010	NA	NA	NA	NA
	2011	NA	NA	NA	NA
	2012	NA	NA	NA	NA
	2013	NA	NA	NA	NA
	2010-2013	NA	NA	NA	NA

**EXHIBIT 1
BIO OF TOBY BERLIN**

Ms. Toby Berlin is a Digital Media Executive and one of the first on the Sony PlayStation Vue launch team, engaged to provide foundational cable distribution knowledge to the organization's new TV service that streams live TV, movies and sports across a variety of devices without a cable or satellite subscription. She continues to consult with Sony aiding in their content negotiations and partnership agreements with MSOs, ISPs Telcos, Professional Review sites and Third Party Marketing companies to support subscriber and revenue growth. Toby earned her Juris Doctorate from the Southwestern School of Law, as a student in the SCALE program, an intensive 2 year undertaking. Ms. Berlin's undergraduate degree is in Marketing from the University of Miami.

Toby is the Founder and President of The School of Toby, a media consultancy; she started in 2013 and has helped countless programmers, MVPDs, cable networks and a movie/TV studio, as well as institutional investors and served as an Expert Witness. In her role at School of Toby she provides advice on distribution negotiations, strategic planning, business development and financial and contractual support. She also consults on organization structure, content acquisitions, packaging and pricing and product development.

Ms. Berlin has provided industry education and insight to institutional investors and participated in legal proceedings as an Expert Witness, where her vast knowledge of the industry was much needed and leveraged.

Previously Ms. Berlin spent 14+ years as Vice President of Programming Acquisitions for DirecTV, where she was instrumental in the company's growth from 3M to 20M subscribers. During her tenure there, she oversaw programming acquisition sourcing and negotiations across numerous categories including Spanish-language, International Services, General Entertainment, Shopping, Adult Programming, Pay-Per-View Events, Local into Local, Airborne and Music services. Among her many accomplishments while at DirecTV, Ms. Berlin conceived of, developed and led the team responsible for the Titanium package, an offering that includes all channels and events for a single annual fee and was met with a plethora of positive publicity. She also founded and served as President of their first Employee Resource Group, the Women's Leadership Exchange, and served on the organizing committee of DirecTV's Super Bowl VIP After Party and Beach Bowl.

Ms. Berlin's prior roles include Executive Director of the Learning Annex, where she grew course offerings featuring best-selling authors and personalities for 250 classes per month; as Director of Business Affairs & Administration for Triad Artists and as Director of Entertainment & Special Events for the Playboy Hotel and Casino.

Toby is very active in both industry and community endeavors; she was on the Board of Directors for the Santa Monica Pier, where she and her family reside.

Before the
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The Library of Congress
Washington D.C.

In the Matter of)	
)	
In Re: Distribution of)	Consolidated Proceeding
Satellite Royalty Funds)	No. 14-CRB-0011-SD
-----		(2010-13)

Written Direct Testimony of Professor Daniel L. Rubinfeld

March 22, 2019

I. INTRODUCTION

A. Qualifications

1. I, Professor Daniel L. Rubinfeld, am the Robert L. Bridges Professor of Law and Professor of Economics Emeritus at the University of California, Berkeley and Professor of Law at NYU. I received an A.B. degree in mathematics from Princeton in 1967 and a Ph.D. from MIT in economics in 1972. I taught previously at the University of Michigan, in the economics department, the Public Policy School, and the law school. I served from June 1997 through December 1998 as chief economist and Deputy Assistant Attorney General for Antitrust in the U.S. Department of Justice.

2. I have written a variety of articles relating to antitrust and competition policy, law and economics, public economics, and quantitative methods, as well as two textbooks, *Microeconomics*, and *Econometric Models and Economic Forecasts*. I have consulted for private parties and for a range of public agencies including the Federal Trade Commission, the Antitrust Division of the Department of Justice, and various State Attorneys General. I have been a fellow at the National Bureau of Economic Research (NBER), the Center for Advanced Studies in the Behavioral Sciences, and the John Simon Guggenheim Foundation. Currently, I teach courses in antitrust and law and statistics (co-taught with Judge Katherine Forrest), and I am a member of the American Academy of Arts and Sciences and a research fellow at NBER. I also served as a past President of the American Law and Economics Association. With respect to consulting, I am also a Senior Faculty Advisor to the consulting firm of Compass Lexecon.

3. My work involving quantitative methods has been part of my academic work throughout my career. A number of my journal publications involve statistical methodology. My textbook, *Econometric Models and Economic Forecasts*, was first published in 1976 and has been through four editions. I served as a co-editor (with John Harkrider) of the ABA Antitrust Section's initial edited volume, *Econometrics: Legal, Practical, and Technical Issues*, First Edition. I have also lectured on the use of statistics in litigation for the Federal Judicial Center. On three of those occasions, the statistics programs involved three days of intensive work for a group of approximately 30 judges (district and appellate). My article, "Reference Guide on Multiple Regression," in the Federal Judicial Center's *Reference Manual on Scientific Evidence*, is now in

its third edition. My Columbia Law Review article, “Econometrics in the Courtroom,” has been widely cited. Furthermore, I have served on several occasions as a court-appointed expert in cases involving statistical issues.

4. Within the scope of my interest in quantitative methods has been a particular interest in the methodology that is inherent in the use of “hedonic regression analysis.” Hedonic models typically relate the price of a product or service to the factors that affect price, including, but not limited to the characteristic of the product or service itself. My initial work in hedonic analysis was my 1978 article (joint with David Harrison, Jr.), “Hedonic Housing Prices and the Demand for Clean Air,” published in the *Journal of Environmental Economics and Management*. I understand the article to be one of the most highly cited articles within the field of environmental economics. Hedonic methods have often been utilized in a number of applications and industries, including the study real estate and housing, consumer goods, airlines, and personal computers, to name a few. My 1989 paper (joint with John Quigley), “Unobservables in Consumer Choice: Residential Energy and the Demand for Comfort,” published in the *Review of Economics and Statistics*, is an illustration of an application to real estate. More recently, I applied a hedonic pricing methodology to evaluate the efficiencies created by airline mergers – see “Airline Network Effects and Consumer Welfare,” published in the *Review of Network Economics*, 2013 (joint with Mark Israel, Bryan Keating, and Robert Willig).

5. I testified previously before the Copyright Royalty Board (“CRB”) in the “WEB IV” proceeding concerning royalties and terms for non-interactive streaming music services for the 2016-2020 period.¹ A key aspect of my work in WEB IV was analyzing agreements between recorded music companies and the music streaming services that served as benchmarks for my analysis. Based on my review and economic analysis of those agreements, as well as other analyses I conducted in that matter, I provided my opinions on the appropriate royalty structure and rates for commercial webcasting.

¹ In re Determination of Royalty Rates and Terms for Ephemeral Recording and Digital Performance of Sound Recordings (Web IV), Before the United States Copyright Royalty Judges, Docket No. 14-CRB-0001-WR (2016-2020).

6. My curriculum vitae is provided as Exhibit 1 to this report. A list of my testimony is provided as Exhibit 2.

B. Assignment

7. I have been asked by counsel for the Devotional Claimants to review the CRB Cable Proceedings generally and to focus my attention specifically on testimony relating to the use of regression models to determine an appropriate distribution of satellite television royalties in the current proceeding.

8. Specifically, counsel has asked me to provide an in-depth evaluation of the pros and cons of using regression methods generally and to examine the implications of my analysis with respect to the determination of the distribution of statutory royalties to the Devotional Claimants relative to other programming categories. Stated differently, my assignment is to opine on the reliability of “Waldfoegel-type” econometric models that were relied on in prior cable proceedings that may be considered in the current satellite proceeding to estimate the relative marketplace values attributable to the groups of copyright owners.²

9. In addition to reviewing expert reports and filings from the prior proceedings, in preparation for this report I have reviewed various other materials relating to the current 2010-13 satellite television royalty proceeding. I also have spoken with expert witness Dr. Erkan Erdem, who also has been retained by the Devotional Claimants in this matter and is submitting a separate report. A list of materials considered appears as Exhibit 3.

² The Judges have explained that Waldfoegel-type regressions refer to econometric analyses put forth by claimants’ experts that are similar to those by Professor Joel Waldfoegel in the 2004-05 cable proceeding on behalf of the joint settling parties, including Joint Sports Claimants, Commercial Television Claimants, and Public TV. The Judges further explain that “Several features characterize a Waldfoegel-type regression. Most importantly, such an approach attempts to correlate ‘variation in the [program category] composition of distant signal bundles along with royalties paid to estimate the relative marketplace value of programming.’ [...] Specifically, Dr. Waldfoegel ‘regress[ed] observed royalty payments for the bundle on the numbers of minutes in each programming category’ [...] He also employed ‘control variables’ ... to hold other drivers of CSO payments constant.’ [...] Dr. Waldfoegel’s control variables included the number of subscribers, local median income, and the number of local channels.” *In re Distribution of Cable Royalty Funds*, No. 14-CRB-0010-CD (2010-13), Final Allocation Determination, 84 Fed. Reg. 3552, 3557 (Feb. 12, 2019) (hereafter, “*2010-13 Cable Allocation Determination*”).

10. My work in this proceeding was supported by staff at Compass Lexecon, an economics consulting firm with which I am affiliated. My remuneration is based on the number of hours that I worked, and is not in any way related to the outcome in this matter. I reserve the right to supplement this report should additional information become available.

C. Summary of Opinions

11. A summary of my findings detailed in this report, particularly those related to applying a Waldfogel-type regression to estimate the value of programming types, are as follows:

- There are a number of shortcomings of a Waldfogel-type regression model for identifying and estimating the marginal value of programming types in this proceeding.
 - The royalty rates are set by regulation and are not based on marketplace valuations. The per-subscriber royalty rate under the statute varies by year and by subscriber type (private home viewing versus commercial). As a result, the variation in the dependent variable in a Waldfogel-type regression that measures satellite royalty fees will be due primarily to variation in the number of subscribers, not the royalty rate. Any attempt to infer relative or absolute dollar valuations will likely reflect a misinterpretation.
 - The variation in royalty payments in both the cable and satellite data sets are related to distribution of signals among subscribers, and not to any determinant of value.
 - As a method that measures value, the Waldfogel-type regression model does not account appropriately for variations in consumer preferences; the methodology implicitly makes assumptions that are implausible.
- In an ideal world, with a different pricing mechanism, a Waldfogel-type regression could provide reliable estimates of the effects of interest in the current proceeding. To be specific, an appropriate *hedonic regression model* formulation might explain the price of a service as a function of the characteristics of that service. For the hedonic model to be

applied with reliability, however, a number of assumptions must hold. In cable and satellite royalty proceedings, these assumptions are unjustified.

- For a hedonic regression to be informative as to value, the royalty rates determined by regulation would have to vary based on a distant signal's programming content. However, the dependent variable in the regression models proposed is effectively a measure of quantity (because it is determined predominately by the number of subscribers), and not market price, and is therefore uninformative as to market value.
- If one were to attempt to estimate a demand model with quantity as the dependent variable, price would be a necessary covariate in the model. Without variation in price, the regression would generate results that would be uninformative as to demand.
- The proposed Waldfogel-type regression analyses assume that the number of minutes of a program category on a distant signal is a determinant of the value of the signal to a cable or satellite system. However, a cable or satellite system should be expected to carry the signal with the programs it values most highly, rather than the number of minutes of programs in the same categories as the programs it values most highly. Indeed, the Judges have found substantial differences in value between different sets of programs within program categories, fatally undermining the necessary assumption that the number of minutes is a reliable proxy for value of a category.³
- Because of differences in the calculation of statutory fees, fee-based regressions in the cable and satellite contexts contain opposite implicit assumptions. A fee-based regression in the cable context effectively assumes that programming on signals retransmitted to large numbers of subscriber groups is less valuable than programming on signals retransmitted to only one or a few subscriber groups within a system. A fee-based regression in the satellite context, on the other hand,

³ See, e.g., *In re Distribution of 1998 and 1999 Cable Royalty Funds*, No. 2008-1 CRB CD 98-99 (Phase II), Final Distribution Determination, 80 Fed. Reg. 13423, 13442 (Mar. 13, 2015).

effectively assumes that programming on a station retransmitted more broadly is necessarily more valuable than programming on a station that is retransmitted less broadly. Neither assumption has a basis in theory.

12. In sum, it is difficult to see how a Waldfogel-type regression could obtain reliable estimates of the marginal value of programming types in this satellite proceeding. I leave open the possibility that some form of survey analysis could provide useful evidence. In particular, because cable and satellite compete and are in the same relevant product market, the surveys relied on in the 2010-13 cable royalty allocation proceeding (hereafter, “2010-13 Cable Proceeding”) can provide useful guidance for determining the relative value of the different programming types.

II. OVERVIEW OF THE SATELLITE STATUTORY ENVIRONMENT

13. In this section, I provide an overview of the parties involved in this proceeding, as well as a description of transmission of distant signals by satellite network providers. I also explain the ways in which the statutory environment for this satellite proceeding (Section 119) is different from the cable proceeding (Section 111). Finally, I provide some background on the concept of “relative marketplace values” that the Judges have relied on in prior proceedings.

A. Parties Involved in the Matter

14. Similar to the claimants in the 2010-13 Cable Proceeding, the determination of the appropriate allocation of royalties for the years 2010-13 deposited under the statutory license for secondary satellite transmissions of broadcast television signals (hereafter, “2010-13 Satellite Proceeding”) involves the following claimants:⁴

⁴ In the 2010-13 Cable Proceeding, Public Television and Canadian Claimants were also included, but are not in the current 2010-13 Satellite Proceeding. In the 2010-13 Cable Proceeding, Canadian Claimants were defined to include all programs broadcast on Canadian television stations, except (1) live telecasts of Major League Baseball, National Hockey League, and U.S. college team sports and (2) programs owned by U.S. Copyright owners. See *2010-13 Cable Allocation Determination* at 3552, n. 1.

- Program Suppliers: Syndicated series, specials, and movies, except those included in the Devotional Claimants Category.⁵
- Joint Sports Claimants: Live telecasts of professional and college team sports broadcast by U.S. and Canadian television stations.
- Commercial Television Claimants: Programs produced by or for a U.S. commercial television station and broadcast only by that station during the calendar year in question, except those listed in subpart (3) of the Program Suppliers category.
- Settling Devotional Claimants: Syndicated programs of a primarily religious theme, but not limited to programs produced by or for religious institutions.

B. Key Differences with the Statutory Environment in Cable (Section 111)

15. There are a number of important differences between the statutory environment in cable and the statutory environment in satellite, whose retransmissions are allowed under 17 U.S.C. 119. Royalty fees for retransmission of cable signals (17 U.S.C. 111) are calculated as a percentage of the cable system's receipts from a subscriber group (a grouping of subscribers receiving the same signals from a cable system on a distant basis).⁶ The percentage is based on the number of distant signal equivalents (or "DSE") that are retransmitted to the subscriber group.⁷ An independent commercial station is 1.0 DSE, a network affiliate (ABC, CBS, NBC) is 0.25 DSE, and a noncommercial station (public television) is 0.25 DSE.⁸ Finally, every cable system must pay a minimum fee equivalent to the cost of 1.0 DSE, whether they retransmit a distant signal or not.⁹

⁵ Syndicated series and specials are defined as including (1) programs licensed to and broadcast by at least one U.S. commercial television station during the calendar year in question, (2) programs produced by or for a broadcast station that are broadcast by two or more U.S. television stations during the calendar year in question, and (3) that are comprised predominantly of syndicated elements, such as music videos, cartoons, "PM Magazine," and locally hosted movies. *See 2010-13 Cable Allocation Determination*, n. 1.

⁶ 17 U.S.C. § 111(d)(1)(C)(iii)(I).

⁷ 17 U.S.C. § 111(d)(1)(B).

⁸ 17 U.S.C. § 111(f)(5).

⁹ 17 U.S.C. § 111(d)(1)(B)(i).

16. In contrast, for satellite, each satellite system pays a flat fee per subscriber receiving a signal on a distant basis.¹⁰ There is no fee for retransmission of the national public television feed, so there are essentially no retransmissions of public television signals.¹¹ Almost all distant satellite retransmissions are by DirecTV, DISH, or a Puerto Rico affiliate of DISH.¹² The royalty rates applicable to carriage of each broadcast signal for private home viewing and commercial viewing are summarized in Table 1 below. These rates are multiplied by the corresponding private home viewing and commercial subscriber counts receiving the relevant satellite signals each month to determine the total royalty fees every six months.

Table 1: Royalty Rates Per Subscriber Per Month

	Private Home Viewing	Commercial
2010	\$0.25	\$0.50
2011	\$0.25	\$0.51
2012	\$0.26	\$0.53
2013	\$0.27	\$0.54

Source: 37 CFR § 386.2.

17. Because of the minimum fee in cable and because of technical limitations in satellite transmission, the marginal costs of satellite retransmissions of distant signals are much higher than marginal costs of cable retransmission of distant signals.¹³ In terms of economic incentives, because cable systems are required to pay for at least one DSE, they are more likely than satellite systems to carry at least one DSE to every subscriber. Therefore, there is less distant retransmission by satellite than by cable. Nevertheless, of those signals that are retransmitted by

¹⁰ 37 CFR § 386.2.

¹¹ *Id.*

¹² Based on data from KPMG, Distant Networks was available after 2010, but not in 2010. National Programming Service and Satellite Receivers are only available in 2010.

¹³ Written Direct Testimony of Erkan Erdem, Ph.D., March 22, 2019, ¶¶ 29, 33 (hereinafter “Erdem WDT”).

both cable and satellite, there is a positive correlation between the number of cable and satellite subscribers receiving the signal on a distant basis nationwide.¹⁴

C. Distribution of Royalty Funds – The Relative Market Value Standard Relied on by the CRB

18. The Judges have explained that Congress did not establish a statutory standard to apply when allocating royalties among the claimants or copyright owners, but that the allocation standard has “evolved” to one of “relative marketplace value.”¹⁵ The Judges further explain that relative marketplace values have been defined as valuations that simulate relative market valuations in a world in which there is no compulsory license. They distinguish between relative values and fair market values, noting that the royalties at issue in the 2010-13 Cable Proceeding are regulated and not derived from actual market transactions. As a result, the royalties do not correspond to the dollar royalties that would be generated in a market.

19. The economic experts in the 2010-13 Cable Proceeding conducted analyses that were expected to inform relative marketplace values.

- Professor Crawford: “I consider what the appropriate hypothetical market is and how best to recover relative marketplace values. [...] I further conclude that the best method for recovering relative marketplace values is to apply a regression approach using outcomes from the existing market, despite the fact that royalties for the carriage of existing distant signals are regulated and not freely determined in a marketplace.”¹⁶
- Dr. Israel: “My primary focus is on whether actual marketplace payments support the overall findings of the 2010-13 Bortz Survey. [...] First, I undertake a regression analysis similar to the analyses submitted on behalf of the Commercial Television Claimants by Professors Joel Waldfogel and Gregory Rosston, and found by the Judges and their predecessors to corroborate the Bortz Survey results in prior cable royalty distribution proceedings. Second, I analyze the payments that cable networks made to copyright

¹⁴ Erdem WDT, ¶¶ 29, 31.

¹⁵ *2010-13 Cable Allocation Determination* at 3555.

¹⁶ Testimony of Gregory S. Crawford, Ph.D., December 22, 2016 (Corrected April 11, 2017), 2010-13 Distribution of Cable Royalty Funds (hereafter, “Crawford WDT”), ¶ 8.

owners in the years 2010-13 for the rights to carry various categories of programming. I find that both of these analyses corroborate the 2010-13 Bortz Survey results on relative marketplace valuations using observed marketplace behavior and outcomes.”¹⁷

- Professor George: “I estimate the relative market value of Canadian Claimant programming on distant broadcast signals using regression analysis. My approach is grounded in the economics of the cable marketplace described in the testimony of Dr. Gregory Crawford in the 2004-2005 proceedings [...] I estimate the relative market value of Canadian Claimant programming to be 6.18% over the total 2010-2013 royalty pool.”¹⁸

20. Although the current proceeding involves retransmission of distant signals by satellite systems, it is useful to consider the analyses put forth by the economic experts in the 2010-13 Cable Proceeding as a possible framework that could be proffered in the determination of distribution of satellite royalty fees to the claimant groups. This allows me to explore potential pros and cons of the likely econometric methods that could be relied upon in the current proceeding.

III. BACKGROUND ON REGRESSION AND HEDONIC MODELS

21. In the 2010-13 Cable Proceeding, Professor Gregory Crawford put forward an econometric framework that he believed would be best suited to determine the division of royalty payments with respect to cable. His proposal involved two steps.¹⁹ First, he proposed estimating an econometric model to determine the relative value to cable operators of minutes of alternative types of content carried on distant broadcast signals. The first step involves the utilization of a regression model to estimate the relationship between total royalty fees (the dependent variable) and minutes of programming of different programming types (the explanatory variables).

¹⁷ Written Direct Testimony of Dr. Mark A. Israel, December 22, 2016, 2010-13 Distribution of Cable Royalty Funds (hereafter, “Israel WDT”), ¶ 20.

¹⁸ Written Corrected Direct Statement of Lisa M. George, May 17, 2017, 2010-2013 Cable Royalty Distribution Proceeding (hereafter, “George WDT”), p. 1.

¹⁹ Crawford WDT, ¶¶ 91-92.

Professor Crawford then proposed using estimates of his regression model, for what he believed to be the marginal value of different types of programming, to calculate the relative share of the total royalties that should be allocated to the various claimants.

22. As a theoretical matter, a hedonic model offers a potential valuable methodology that might be applied to the calculation of the marginal values of various transmissions, which would serve as the basis of a determination of the allocation of satellite royalties. For the model to be applied effectively, however, a strong set of assumptions are required. In the analysis that follows, I will explain that a number of these assumptions would essentially fail for the 2010-13 Satellite Proceeding. Furthermore, even after taking these assumptions into account, a Waldfoegel-type regression is unreliable for the task at hand.

23. To begin the analysis, I briefly review some of the important basics of the regression framework. Then, I spell out the central assumptions that would apply if a hedonic regression model would be used in the context of this proceeding. In doing so, I clarify what hedonic models can and cannot accomplish. Finally, I briefly summarize some of the concerns about the use of Waldfoegel-type models that were discussed in the cable proceeding.

A. A Primer on Regression Analysis

24. In my “Reference Guide on Multiple Regression,” I offer a detailed description of the regression methodology for the Federal Judicial Center. In this section, I provide a high-level explanation of the key aspects of multiple regression analysis that draws on portions of that article, along with some material from my econometrics textbook.²⁰

25. Multiple regression is a statistical tool that is used to understand the relationship between or among two or more variables. To be specific, the variable to be explained – the dependent variable – is related to one or more explanatory variables that are thought to be associated with changes in the dependent variable. In modern usage, these explanatory variables are often called “covariates.” This terminology reflects the knowledge that a positive (or negative) correlation between an explanatory variable and a dependent variable does not imply causality. It leaves

²⁰ See Daniel L. Rubinfeld, Reference Guide on Multiple Regression, in Federal Judicial Center *Reference Manual on Scientific Evidence*, Third Edition, 2011. See also Robert S. Pindyck and Daniel L. Rubinfeld, *Econometric Models and Economic Forecasts*, Fourth Edition, 1998, McGraw-Hill.

open the possibility that the causality may operate in the opposite direction or that there may be no causal relationship at all (the correlation will have been driven by one or more unspecified variables).

26. In making causal inferences, it is important to avoid *spurious correlation*. Importantly, causality cannot be inferred by data analysis alone; it is essential that the relationship exists based on an underlying causal theory, as informed by an economic system or some other data generation process that explains the relationship between the variables. To be specific, the fact that two variables are correlated does not guarantee the existence of a relationship; it could be that the model as specified does not reflect the correct interplay among the explanatory variables and thus leads to results that, on their face, appear to be estimating a meaningful relationship among the variables.²¹

27. There is a tension between any attempt to reach conclusions with near certainty and the inherently uncertain nature of the data in multiple regression analysis. Regression analysis reflects this uncertainty, not only by measuring the effects of various covariates on a dependent variable (as reflected in the estimated regression parameters or coefficients), but also measured by the standard errors associated with those coefficients.²² The standard errors provide information on the precision with which the coefficients were estimated. As I describe in more detail below, the standard errors can be used to test for statistical significance and to construct confidence intervals.

28. Within the multiple regression framework, a coefficient will provide an estimate of the expected effect of a unit change in the associated covariate on the dependent variable, holding constant or controlling for all of the other covariates in the model that has been specified. If one or more covariates are highly correlated with the covariate whose parameter is of particular

²¹ For instance, estimating a regression attempting to explain children's ages with their heights would undoubtedly show a positive correlation, in that age and height are positively correlated. However, one cannot draw a conclusion that height determines age. The regression in that case is mis-specified. Rather, it is that age that determines height given that age would be expected to be predetermined, or exogenous, in a random sample of children. Thus, the correct specification would be a regression of height on age and other covariates, such as gender, parent's height, *etc.*

²² The standard errors of the coefficients measure the standard deviations of the sampling distributions of the estimated coefficient parameters.

interest, it may be difficult to determine the relationship between the covariate at issue and the dependent variable with accuracy. High standard errors associated with the measurement of the coefficient on the covariate at issue can be a sign of possible *multicollinearity*.²³

29. Because it is not possible for a regression model to account fully for the relationship between a series of covariates and a dependent variable, regression models include an error term that accounts for unobservable variation in the dependent variable. If a further assumption is made that the probability distribution of the error term is known (it is typically assumed to be normally distributed), or if the sample is sufficiently large (typically with 30 or more degrees of freedom), statistical statements can be made about the precision of the coefficient estimates. This follows from the Central Limit Theorem in statistics, which tells us, as a general rule, that the distribution of the estimated parameters will be approximately normally distributed if the sample is sufficiently large.²⁴ However when the sample size is small, this approximation will not be suitable and the Student t-distribution (which accounts for the sample size and the number of parameters in the regression model) will be utilized.

30. The normal distribution has the property that the parameter that is being estimated will lie with an interval of plus or minus 1.96 standard errors of the estimated coefficient with 95 percent probability.²⁵ Typically, a coefficient estimate is characterized as being *statistically significant* when the ratio of the estimated parameter to its standard error is greater in absolute value than 1.96 in sufficiently large samples. Significance allows us to reject with 95 percent confidence the claim that there is no relationship between the dependent variable and the covariate of interest. As an equivalent alternative, we can calculate a 95 percent confidence interval as the estimated coefficient plus or minus 1.96 standard errors. If the regression is correctly specified and appropriately estimated, that confidence interval will include the true regression parameter with probability 95%.

²³ Pindyck and Rubinfeld (1998), pp. 95-98. The converse is not true; a high standard error may also result if there is no meaningful relationship between the covariate and the dependent variable. I also note that there is a difference between imperfect multicollinearity and perfect collinearity, which occurs when there is a linear combination of the explanatory variable. This results in a failure to estimate the coefficients of the model.

²⁴ Pindyck and Rubinfeld (1998), p. 28.

²⁵ It is also necessary that errors drawn with each observation be drawn randomly from the same distribution and be independent of each other.

31. The residuals from the regression model are measures of the difference between the actual values of the dependent variable and the predicted values. In essence, the residuals are a realization of the error term. With ordinary least squares (“OLS”), which is the most common regression estimation technique, coefficient estimates are obtained by minimizing the sum of squared residuals. The residuals can be used to calculate the standard error of the entire regression model. Other things equal, the smaller the standard error the more confidence that one will have in the accuracy of the estimated regression model.

32. The residuals and the standard error of the regression also play a key role in the calculation of the R-squared of the model, which takes on a value between zero and one. R-squared measures the share of the variation of the dependent variable that is explained by the linear regression. Although the standard error of the regression and the R-squared are among many regression diagnostic tools available to the econometrician, one should generally not rely solely on either of them for determining a reliable or informative model.²⁶

33. There is a tradeoff between including too few and including too many explanatory variables in a regression model. Failure to include a relevant variable that is correlated with the covariate of interest will bias the estimated coefficient of the variable of interest. This omitted variable bias can result in overstated or understated coefficient estimates depending on the correlation between the omitted variable and the dependent variable, as well as the correlation between the omitted variable and the included covariates. However, the inclusion of variables in the model that are irrelevant will tend to increase the variability of the distribution underlying the covariate of interest, leading to higher standard errors and increasing the likelihood that the parameter estimate will be statistically different from zero.²⁷

²⁶ High R-squared values near 1.0 can actually be indicative of a mis-specified model or some other pathology in the data. For instance, in time series data with stochastic trends or serially correlated errors, it is not uncommon to obtain a high R-squared when in fact the estimated relationship from the model is spurious. See, e.g., C.W.J. Granger and P. Newbold, “Spurious Regressions in Econometrics,” *Journal of Econometrics*, Vol. 2, 1974, pp. 111-120. Moreover, the Judges have acknowledged that “goodness of fit as measured by the R^2 calculation is not dispositive when evaluating a regression intended to measure specific effects rather than to predict a result.” See *2010-13 Cable Allocation Determination* at 3574. Of course, one should not simply ignore R-squared, either. A low R-squared can suggest a missing covariate and more generally a mis-specified model, and should be investigated.

²⁷ See, e.g., Pindyck and Rubinfeld (1998), Section 7.3.

34. Assuming sufficient degrees of freedom and no perfect collinearity, a linear regression will produce coefficient estimates, regardless of whether the variables in the regression have an empirical relationship. To interpret a coefficient, it is necessary to know whether there actually is a relationship, or whether the coefficient is merely a product of chance. Statistical significance is a statistical determination intended to falsify the hypothesis that a correlation is a product of chance. Even in the absence of statistical significance, it may be possible to rely on a coefficient, but only if there is a strong reason independent of statistical analysis to believe that the variables are related. In such a circumstance, we may say that the parameter is *practically significant*, even if not statistically significant.

35. In concluding this section, I note that in my chapter on multiple regression analysis for the Federal Judicial Center, I make a number of important points that courts should consider when evaluating regression results. The following are particularly relevant for this proceeding:

- How certain are we that an estimated correlation reflects a causal relationship?
- One should evaluate the *practical significance*, in addition to the statistical significance, of the regression results. Is the magnitude of the estimated parameter meaningful in the context of the issue being studied?
- Are the regression results robust? Are the results sensitive to slight modifications in the underlying assumptions?
- Are the regression results sensitive to one or more data points?
- Are the individual errors in the regression model independent of each other?

B. Hedonic Regression Models

36. Often utilized in empirical studies involving property values, *hedonic regression* is a methodology that relates the price of a product to the characteristics or qualities of the product.²⁸ To be specific, a hedonic price model assumes that the price of a product can be characterized as

²⁸ See, e.g., Zvi Griliches, “Hedonic Price Indexes for Automobiles: An Econometric Analysis of Quality Change,” National Bureau of Economic Research, *The Price Statistics of the Federal Government*, 1961, pp. 173-196. For a general discussion of the use of hedonic regression models, see Jan de Haan and W. Erwin Diewert, “Hedonic Regression Models,” Chapter 5 in OECD, *et al.*, *Handbook on Residential Property Price Indices*, 2013, Eurostat, Luxembourg.

the sum of the values of the attributes of the product, with each coefficient of the covariate reflecting the incremental value of one of the attributes of the product.

37. In the most basic linear hedonic regression model in which the price of the product is determined in a competitive market, the implicit “value” of each product characteristic is a constant that is independent of the scale and independent of the value of the other product attributes. However, if the prices are not market determined, the values measured in a hedonic regression will not necessarily reflect implicit market values. In addition, when the model is non-linear, the attribute values, whether indicative of market values or not, will depend on the magnitudes of all of the covariates in the model.²⁹

38. The values that are determined using the hedonic regression model are driven in general by the economic forces of supply and demand. If one wishes to analyze only the demand values, one must either assume that supply is fixed or estimate a second demand equation which is identified by changes in supply over time and space.

39. To illustrate, in a study that my co-author and I conducted in order to determine the environmental value of clean air, we estimated a regression model that related the logarithm of the median value (“MV”) of homes in census tracts in Boston in 1970 [$\log(MV)$] to the level of nitrogen oxides in those tracts (“NOX”) and an extensive set of product and neighborhood characteristics.³⁰ The coefficient on the pollutant variable measured the incremental negative effect of higher nitrogen oxide levels on property values, an effect that varied both with the level of the pollutant and the values of all of the other variables included in the regression model.

²⁹ According to John M. Quigley and Daniel L. Rubinfeld, “Unobservables in Consume Choice: Residential Energy and the Demand for Comfort, *Review of Economics and Statistics*, Vol. 71, No. 3, 1989, pp. 416-425, “In transactions in the housing market, both kinds of commodities [goods that provide direct satisfaction and goods that are viewed as production inputs] are jointly priced. [...] The ‘hedonic’ character of attribute prices thus provides signals affecting both the selection of final consumption commodities and the substitution of input commodities in home product [...] The methodological innovation in this paper is the exploitation of the nonlinear prices observed in the housing market [...]”

³⁰ David Harrison Jr. And Daniel L. Rubinfeld, “Hedonic Housing Prices and the Demand for Clean Air,” *Journal of Environmental Economics and Management*, Vol. 5, No. 1, 1978, pp. 81-102. See in particular, the Appendix which describes the “Housing Value Equation.”

40. Of course, if prices had been fixed according to a formula, and were not free to vary based on levels of nitrogen oxides, then any correlation between price and nitrogen oxide levels would almost certainly have been due to some unobserved variable. In that case, the NOX coefficient would not represent the “effect” on “property values,” only the “correlation” with property “prices.” That complication describes a core issue in the determination of cable and satellite royalties.

41. To formalize this example, the hedonic regression model of housing values was of the following form: $\log MV = \alpha + \beta A + \gamma Z + \varepsilon$, where A is the product characteristic of particular interest and Z represents all other relevant characteristics. The parameter β allows us to measure the shadow price or implicit value of attribute A. With this log-linear model, the value is determined by differentiating $\log MV$ with respect to A: $d(\log MV)/dA = \beta$, noting that $d(\log MV)/d(MV) = (1/MV)dV$, substituting, and then solving to find that $dMV/dA = \beta MV$. Here, the value of the attribute A, *i.e.*, the implicit price of A, is related to the value of the entire product, which in turn depends on the values of all of the other covariates in the model.

42. To illustrate, the housing value equation that I estimated had the form: $\log(MV) = \alpha + \beta \text{NOX}^\gamma + \dots + \varepsilon$.³¹ In this instance, the magnitude of the marginal value of cleaner air, measured by the incremental value of a decrease in nitrogen oxygen levels is given by $d(\log(MV))/d(\text{NOX})$. The special case in which $\gamma = 1$ mirrors (in part) the model that was utilized by Professor Crawford in the cable proceeding. In this special case, $d(MV)/d(\text{NOX}) = \beta MV$.

43. The logarithmic specification of the hedonic model is appealing because it takes into account the possibility that the error variance will be positively correlated with the level of royalties collected (*i.e.*, there will be heteroscedasticity). However, it raises additional complexity in the interpretation of the model, including whether covariates should be in level or logarithmic form, and how coefficients of interest should be converted in order for one to determine an appropriate “marginal value.”

³¹ Harrison and Rubinfeld (1978). See, in particular, the Appendix which describes the “Housing Value Equation.”

C. Econometric Models Put Forth in the Cable Proceedings

44. Professor Crawford, the economic expert for the Commercial Claimants in the 2010-13 Cable Proceeding, put forward a regression model that he testified should be used to determine the relative marketplace value of the different claimants' cable programming during the 2010-13 period. Professor Crawford's regression model relates the natural logarithm of total royalties paid for cable programming on distant broadcasts to the minutes of various claimants' programming and other control variables using data that vary by six-month accounting periods and by the various subscriber groups in the cable proceeding.³²

45. The coefficients of this regression model are used to determine the share of royalties that Professor Crawford believes should accrue to each claimant category. Professor Crawford claims that the coefficients, weighted by the royalty paid, measure the "marginal value" of each programming type. The share of royalties, for each programming type, is calculated as the ratio of the total value of that programming type carried on distant signals in each year to the total value of all programming carried on distant signals. As explained previously, whether coefficients actually measure marginal value is a central question in this proceeding.

46. In the 2010-13 Cable Proceeding, Professor Gregory Crawford, Professor Lisa George, and Dr. Mark Israel supported the Waldfogel-type regressions, while Dr. Erkan Erdem was highly critical. In their evaluation of the proposed regression methodology the Judges expressed the opinion that the regression methodology was helpful, but left open the possibility of critiques as to the application of the methodology.³³

47. The Judges took into account the view that niche programs are likely to increase cable profitability when household programming tastes are negatively correlated with the tastes for other programming.³⁴ Importantly, they noted Dr. Erdem's criticism – that the natural units in which to account for this negative correlation is the availability of particular programs, regardless of their duration or frequency.³⁵

³² Crawford WDT, Section VI.

³³ *2010-13 Cable Allocation Determination* at 3558.

³⁴ *2010-13 Cable Allocation Determination* at 3558.

³⁵ *2010-13 Cable Allocation Determination* at 3560.

48. The Judges acknowledged the phenomenon of “overfitting,” attempting to estimate more parameters than is desirable given the available number of degrees of freedom (the number of observations less the number of parameters to be estimated). In the process they criticized Professor Crawford’s lack of response to concerns expressed by Dr. Erdem. Dr. Erdem pointed out that the implied royalty shares arising from Professor Crawford’s model are sensitive to the choice of variables and the model specification.³⁶

49. With respect to the testimony of Dr. Israel on the regression framework, it is noteworthy that Dr. Erdem found that approximately 200 out of 5,465 observations were influential.³⁷ Analyzing influential observations should not be overlooked as a potentially important part of the econometric analysis. It is common, and in fact recommended, that sensitivity analyses be conducted to determine if a particular set of results is stable when faced with reasonable modifications.³⁸ Dr. Erdem appears to have been attempting to do this in his testimony in the 2010-13 Cable Proceeding, one aspect of which was assessing the extent to which results were driven by influential observations.³⁹ This can be important if such extreme observations push or pull coefficient estimates above or below the true (but unknown) parameter values. As I explain in my econometrics textbook, further analysis is required if outliers are identified in order to determine if there are data quality issues or specification problems in the model.⁴⁰

50. From my perspective the most important issue that relates directly to overfitting is *model selection*. It is frequently the case that the specification of a regression model, hedonic or otherwise, is the result of a model selection process that involves the estimation of multiple regression models. As a result, the statistical significance of any of the regression results is likely to be overstated. It follows that, without knowledge of the process that led to a regression

³⁶ Testimony of Erkan Erdem, Ph.D., March 9, 2017 (hereafter, “Erdem Cable Testimony”), pp. 14-15.

³⁷ *Id.* at p. 18.

³⁸ See, e.g., Jeffrey M. Wooldridge, *Introductory Econometrics: A Modern Approach*, Fifth Edition, 2013, p. 685.

³⁹ Dr. Erdem explained that his identification of influential observations was based on certain statistical distance criteria. See Erdem Cable Testimony, p. 17. This is a common method for the identification of influential observations.

⁴⁰ Pindyck and Rubinfeld (1998), p. 7.

model being advocated, one cannot be certain as to the importance of any statistical properties of the estimators of the regression coefficients.⁴¹

51. Ultimately, the Judges in the 2010-13 Cable Proceeding found Professor Crawford's regression analysis to be "highly useful" in estimating relative values.⁴² There is no doubt in my view that cable and satellite compete for subscribers in most parts of the country. For this reason, my analysis of the allocation of satellite royalties will take into account the various experts' views as to the appropriate methodology in the cable proceeding.⁴³

IV. ECONOMETRIC ESTIMATION OF RELATIVE MARKET VALUE

52. In the sections above, I provided background on regression analysis, particularly as it relates to hedonic analysis, where the goal is to estimate the value of product characteristics based on market prices. In this section, I describe the likely difficulties with using a Waldfogel-type regression model to estimate the relative market value of programming on distant signals in the current 2010-13 Satellite Proceeding.

A. Proponents of the Waldfogel-Type Regression Have Not Articulated a Cohesive Theory

53. It is important to understand the framework for potential econometric analyses that might be put forth in this matter. As I have explained above, one of the more well accepted approaches to estimating product characteristic value is hedonic regression. A hedonic framework requires variation in market prices and product characteristics. As it relates to this matter, there would

⁴¹ See *2010-13 Cable Allocation Determination* at 3566, n.63, for an explanation of this phenomenon, couched in terms of a discussion of "phantom degrees of freedom." For one well known discussion of this phenomenon, see Edward E. Leamer, "Let's Take the Con Out of Econometrics," *American Economic Review*, Vol. 73, No. 1, 1983, pp. 31-43. See also Peter E. Kennedy, "Sinning in the Basement: What are the Rules? The Ten Commandments of Applied Econometrics," *Journal of Economic Surveys*, Vol. 16, No. 4, 2002, pp. 569-589.

⁴² *2010-13 Cable Allocation Determination* at 3569.

⁴³ In prior antitrust analyses in which I have been involved, I have treated the relevant antitrust markets to include (in most cases) both satellite and cable. Specifically, the relevant market includes multichannel video programming distributors ("MVPD"). See, for example, Richard Gilbert and James Ratliff, "Sky Wars: The Attempted Merger of EchoStar and DirecTV," in Kwoka and White (eds.), *The Antitrust Revolution*, 5th Edition, 2009. The only areas in which cable and satellite providers are not in direct competition for the same subscribers are those (mostly rural) areas that are unserved by any cable provider.

need to be variation in royalty rates that are determined in the marketplace on the basis of product characteristics such as minutes of programming.

54. One theory underlying the hedonic approach is that cable and satellite systems would be willing to pay more for retransmission of stations that have more minutes of the programming that they value (and their subscribers value). If there is variation in the number of minutes of different types of programming, then, in a free market we would expect variation in the market prices of the *right to retransmit* that programming. The relationship between market prices and minutes of programming would be estimated with the hedonic model and the value attributable to each programming type could be recovered by the estimated coefficients. However, it is clear in this matter that, while the economic theory may be reasonable, the royalty fees are not set in a marketplace according to willingness to pay. Therefore, there is no meaningful variation in the dependent variable in a model that is applied to either cable or satellite. As a result, the hedonic model is likely to generate uninformative results.

55. One might consider a potential theory that cable and satellite systems will choose to retransmit stations with programming that they value more to more subscribers. However, this ignores that the observed variation results from the fact that some stations are widely retransmitted to many subscribers or subscriber groups (therefore implying high value in satellite, but contributing little to variation in cable), and some stations have programming that is valuable only in limited geographical markets and thus garnering only low numbers in satellite, even though different programming within the same category might be highly valuable elsewhere (for example, local news, weather, or sports teams). Moreover, such a theory based on the number of subscribers would be inconsistent with any of the regression specifications proposed so far, all of which include number of subscribers as a control variable.

56. Alternatively, one might posit that the number of subscribers to cable and satellite systems will increase over time if the stations retransmitted by those systems have more valuable programming. Again, here it is not clear that the number of minutes of programming is a reliable proxy for the value of that programming to subscribers. Additionally, any reasonable model based on this theory would necessarily take into account or control for the wide variety of programming on all of the potentially hundreds of signals that are carried by the cable or satellite

system. But regardless of whether this theory could be implemented in a reasonable way, it is not incorporated into Dr. Crawford's methodology, which, through the use of fixed effects at the system-accounting period level, does not act on any variation from one accounting period to another.

57. Moreover, a theory that signals with more minutes of valuable programming are more likely to be retransmitted than signals with fewer minutes of more valuable programming would require a regression model that accounts for signals that are carried as well as those that are not. I have not seen such a model.

58. To sum up, there are two fundamental points to consider in relation to the various economic theories described above. First, at a very basic level, it is clear that the Waldfogel-type regression is not a true hedonic model in which the dependent variable reflects market price variation. The dependent variable is a measure of total expenditures—that is, royalty rate multiplied by number of subscribers (or, in cable, a fixed percentage of subscriber group revenues, based on the number of distant signal equivalents). And, because royalty rates do not vary, except in a predictable way that could be controlled for, the variation in the dependent variable in a Waldfogel-type regression is essentially capturing variation in the number of subscribers (a measure of volume or quantity).

59. I consider that the Waldfogel-type regression that has been relied on by experts in prior proceedings could be intended to be a type of reduced-form econometric model that is derived from some more fundamental consumer-producer theory that has not yet been formalized or articulated in the prior proceedings.⁴⁴ I provided some thoughts on potential theories that could be articulated above. However, I am not aware of a structural economic model involving consumer utility maximization, producer profit maximization, potentially bargaining theory, or the like, that has been put forth as the structural model that, when equilibrium conditions are imposed, would ultimately result in a reduced-form specification that is the Waldfogel-type model. Without that, it is difficult to know which variables ought to be in the regression, which variables ought to not be in the regression, and how one should interpret the coefficients on those

⁴⁴ See Pindyck and Rubinfeld (1998), chapter 12, for a discussion of structural models and reduced-form models.

variables. As I explain in more detail below, I find that a Waldfogel-type regression is unlikely to be informative in determining marketplace values for the different programming types in the cable and satellite proceedings.

B. Reliable Econometric Estimation of the Marginal Value of Programming is Impeded by the Realities of the Marketplace and the Statutory Environment

i. Royalty Fees That Would Be Employed in a Waldfogel-Type Satellite Model Are Not Based on Market Transactions

60. Similar to the cable royalty fees paid by the cable providers in the 2010-13 Cable Proceeding, the royalty fees paid by the satellite providers in the current 2010-13 Satellite Proceeding are not based on market outcomes. To be true market prices, the royalty fees presented earlier in Table 1 would have to be set in a manner consistent with a willing buyer-willing seller framework in which market forces based on supply and demand can push and pull royalty rates until an equilibrium is reached. In this proceeding, however, the satellite royalty rates are set by regulation, not by market forces.

61. Table 1 provides the satellite royalty fee per subscriber per month. The royalty fee ranges from \$0.25 to \$0.27 per subscriber per month for private home viewing subscribers and \$0.50 to \$0.54 per subscriber per month for commercial subscribers. Multiplying these royalty rates by their respective number of subscribers receiving the distant signal results in the total royalty fee that would be used as the dependent variable in a Waldfogel-type regression. The key question is whether a regression based on such a dependent variable could provide reliable estimates of the marginal value of the programming types that could then be used to determine the relative marketplace value of the programming types.

62. In my view, there is no reason to believe that a regression based on statutory royalty fees will reliably identify the marginal value of programming that would prevail if the royalty fees were instead determined in a free market. I do not rule out the possibility that some regression might be proposed that could potentially provide corroborative or supporting evidence to the results from a more suitable framework for studying the question more directly, such as a valid statistical survey that attempts to ascertain the market value of programming types by directly asking willing buyers (the survey respondents) about their choices and valuations. But I do not

see how any of the regression specifications used in the cable proceeding can reveal relative fair market value, given the failure of the necessary assumptions that these specifications entail.

63. There are no differences that I am aware of between the current 2010-13 Satellite Proceeding and the prior 2010-13 Cable Proceeding that would lead me to conclude that a Waldfogel-type regression should be a basis for determining the relative marketplace value of the different programming types in this proceeding, as such regressions have been proposed. As I noted earlier, without market prices, a Waldfogel-type specification is not a true hedonic model that can recover product attribute value.

ii. A Fee-based Regression Does Not Address the Negative Correlation Between Values of Programming Types

64. In the 2010-13 Cable Proceeding, it was pointed out that stations bundle various types of programming so as to create the possibility that a “negative correlation” can exist across subscribers’ willingness to pay such that the bundle can be relatively less preferable when one programming type (*e.g.*, sports programming) is added to the bundle as opposed to programming of another type (*e.g.*, devotional programming).⁴⁵ I expect that the same negative correlation to apply in the current satellite proceeding. Indeed, the underlying economics is at the core of my analysis of the economics of bundling in my microeconomics textbook.⁴⁶ The question I consider here is whether the data available in the current proceeding allow for an econometric specification that accounts for the possible negative correlation of willingness to pay for various programming types. While there might be some way – yet to be proposed – to account for certain types of negative correlation in cable, I do not see how it could be in the satellite proceeding.

65. I have reviewed preliminary satellite royalty fee data compiled by KPMG under the direction of Dr. Erkan Erdem. The data vary based on satellite provider (*e.g.*, DirecTV, DISH, *etc.*), channel or signal (*e.g.*, KCBS-DT, KTLA-DT, *etc.*), and accounting period (2010-1, 2010-2, 2011-1, *etc.*). Unlike in the cable context where some geographic variation may be due to demographics, the satellite data do not vary based on geography (except to the indeterminable

⁴⁵ See discussion in *2010-13 Cable Allocation Determination* at 3558.

⁴⁶ Robert S. Pindyck and Daniel L. Rubinfeld, *Microeconomics*, Fifth Edition, 2001, Prentice Hall, pp. 392-402.

extent that individual signals tend to be retransmitted within discrete geographical areas); the data are available only for the U.S. in aggregate.⁴⁷

66. The negative correlation is fundamentally driven by consumer preferences for programming types, and consumer preferences are expected to vary on a variety of different dimensions—for instance, on a city by city basis or a designated market area (“DMA”) basis (particularly in the case of programming within a category that might be expected to have more local appeal, like the local news, weather, or sports teams of a particular city), or on the basis of demographic characteristics, like religion, sex, race, age, education level, *etc.* Neither the cable nor the satellite data contains the kind of demographic information (either by geography or nationwide) that would be needed in a regression investigating how “negative correlation” affects value of – or even just demand for – different categories of programming.

iii. There is Little Meaningful Price Variation Based on Programming Content

67. The statutory satellite royalty fee per subscriber per month varies on only two dimensions: it increases over time from \$0.25 to \$0.27 for private home viewing subscribers and \$0.50 to \$0.54 for commercial subscribers, and it differs for private home viewing versus commercial subscribers, in which the latter is approximately twice the former. Multiplying these royalty rates by their respective subscriber counts results in the total royalty fees (in dollars) that would be used in a Waldfoegel-type regression. However, the lack of variation in per subscriber royalty fees poses a potentially serious misspecification problem that would render such an analysis uninformative. Specifically, the marginal effects estimated in such a regression might tell us something about the number of subscribers receiving the programming, all else equal. But it does not tell us anything about the marginal value of the programming based on dollar royalty fees if royalties were determined in a competitive market.

⁴⁷ I understand that the data available in the 2010-13 Cable Proceeding varied by cable system operator and the subscriber groups within that (which could capture variation by geographic area) and by accounting period, but did not have channel (signal) variation within a subscriber group. Moreover, I understand that at least some of the variation among subscriber groups within a system reflects the fact that a signal can be local as to some subscriber groups in a system and distant as to others (for example, in a cable system that straddles a DMA boundary). In such a circumstance, any observed variation in minutes would merely reflect the geographical application of the regulatory regime, rather than some potential geographical variation in demand. The data utilized does not permit a distinction between situations where variation is based on a cable system’s choice not to carry a signal to a subscriber group, and situations where the variation is based on a signal being local to some subscriber groups.

68. To see this, consider a simple Waldfogel-type specification as follows

$$\ln(R_{it}) = \alpha + \sum_k \beta_k M_{k,it} + \gamma \ln(S_{i,t-1}) + \dots + \varepsilon_{it},$$

where R_{it} is the total royalty fee for a signal-satellite provider combination i in period t , $M_{k,it}$ is the number of minutes of programming type k (sports, devotional, *etc.*) in it , $S_{i,t-1}$ is the number of subscribers in the prior period, ε_{it} is the error term, and there are additional control variables in the specification but excluded from the exposition here; α , β_k , and γ are parameters to be estimated in the regression. The econometrician analyzing satellite royalty fees would presumably understand the limited variation in the per subscriber fees (see discussion above), and would want to account for it in the regression by including, for example, time and/or accounting period fixed effects and a dummy variable indicating when the signal was also broadcast to commercial subscribers.⁴⁸ Including fixed-effects for system-accounting period, as Professor Crawford did, would mean that the only variation in the per subscriber royalty fees would be variations between subscriber groups within a system in an accounting period.

69. One can then view R_{it} as being approximately equal to rS_{it} , where r is the per subscriber royalty rate and S_{it} is the number of subscribers. Substituting this expression into the regression specification above and rearranging, results in

$$\ln(S_{it}) = \alpha - \ln(r) + \sum_k \beta_k M_{k,it} + \gamma \ln(S_{i,t-1}) + \dots + \varepsilon_{it}.$$

It is clear from this alternative view of the model, that the parameters denoted by β_k are not the marginal values of programming types based on the dollar amount of royalty fees, but rather they are the marginal estimates of programming types on the number of subscribers. The dollar value from the royalty fees in the dependent variable is subsumed in a new constant term, $\alpha - \ln(r)$, and has no impact on the slope coefficients β_k and γ .

70. This reveals a potentially serious specification problem that is inherent in a Waldfogel-type regression—namely, that the coefficients measure the effect of additional programming minutes on subscribership (clearly for satellite, less clear for cable), not the marginal value based on

⁴⁸ For instance, Dr. Israel included accounting period fixed effects in his models. See Israel WDT at B-13.

royalty fees. Thus, to accept a Waldfogel-type regression as informative for the question that the Judges must answer, one would have to be willing to agree that the appropriate measure of marginal “value” is based solely on the correlation with subscribership.

iv. The Panel Variation is Likely Insufficient to Conduct a Reliable Regression Analysis

71. Whether the panel variation is sufficient to conduct a reliable regression analysis depends on the theory that one puts forth for identifying the effect of interest. In the 2010-13 Cable Proceeding, there was geographic variation in the data, although the data did not reveal whether geographic variation was driven by cable system decisions or by the geographical application of the regulatory regime (*i.e.*, the fact that signals can be local to some subscriber groups and distant to other subscriber groups within a system).⁴⁹ In the current satellite proceeding, there is primarily station variation, which is also not sufficient to estimate the effect of interest.⁵⁰ While geographic variation leaves open some prospect that a hedonic approach will generate useful result with further data, I do not find the attempt by Professor Crawford to be suitable.

72. To elaborate, the satellite data have station rather than subscriber group variation. If there were a coherent theory put forth showing that the number of subscribers receiving the programming is a reliable proxy for the value of the programming, the satellite data might be useful. I have yet to see such a theory. Alternatively, consider a theory that a system retransmitting to more subscribers than another station implies that the minutes of programming on the former must be more valuable than the minutes of programming on the latter. In such a hypothetical scenario, the satellite data might be better suited to the regression analysis than cable. This satellite-driven theory fails to account for the fact that demand for different programs within a category might vary on a geographical or other basis not reflected in the data. I have yet to see such a theory.

⁴⁹ For instance, Dr. Crawford noted that there were more than 3,000 cable subscriber groups per accounting period in his data. Crawford WDT, ¶ 71.

⁵⁰ Based on data compiled by KPMG.

C. Other Assumptions Required for Reliable Econometric Results Are Not Plausible

73. In this section, I explore additional assumptions that are required for a Waldfogel-type regression analysis to provide reliable econometric results in the current 2010-13 Satellite Proceeding. These assumptions include that the number of minutes of distant program signals be a reliable proxy for program category values, that royalty rates determined by the regulation be related to a distant signal's programming, and that distant signals retransmitted to fewer subscribers do not tend to have more local-appeal programming. I do not believe these assumptions are plausible and thus utilizing a Waldfogel-type regression would be unreliable.

i. Required Assumption: The Royalty Rates Determined by Regulation Are Related to a Distant Signal's Programming

74. The fundamental assumption required for a Waldfogel-type regression to generate reliable estimates of the marginal value of distant signal programming is that the royalty fees established by regulation be related to a distant signal's programming. As noted, royalty fees only vary by year and by subscriber type (private home viewing and commercial), or, in the cable context, by signal type (*i.e.*, independent, network, or noncommercial educational signals). It is clear that the royalty rates set by regulation do not vary based on a distant signal's programming type or the value of that distant signal's programming.⁵¹ Thus, there is no clear theory as to how a regression of statutory royalty fees on minutes of programming types and other controls can reliably estimate the marginal value of programming.

75. In a traditional hedonic model, the dependent variable, typically the price of the good or service, is in some way determined by the interplay among product characteristics, market forces, and other relevant determinants (see the discussion in Section III.B). However, in the current proceeding, the distant programming has nothing to do with the per subscriber royalty rates determined by regulation. The statutory royalty fees per subscriber per month are identical for every station, regardless of the programming type. A system or subscriber group would pay the same royalty fees per subscriber for a station that has 24 hours of sports programming as it

⁵¹ I understand that there are some exceptions to this, including cable retransmissions of public TV and network signals, which are valued at 0.25 DSE, 17 U.S.C. § 111(f)(5), and satellite retransmissions of public TV signals, which are governed by a different regime.

would for a station that has 24 hours of religious programming, or for a station that has 12 hours of each.

76. For reasons described above, the number of minutes of programming does not determine the statutory royalty fee. As I noted, the dependent variable in a Waldfogel-type regression applied to satellite royalties is essentially the number of subscribers (or the logarithm of number of subscribers). Thus, we are in uncharted waters in terms of an econometric framework for analyzing the marginal value of programming types. On one hand, the dependent variable does not reflect a notion of price (be it a market price or some other price) and thus the Waldfogel-type specification applied to satellite does not fit within a hedonic valuation framework. On the other hand, the dependent variable is essentially capturing a notion of quantity (number of subscribers), and so a Waldfogel-type specification applied to satellite is a type of demand model, but one without prices included as explanatory variables, which is a model that would be inconsistent with modern empirical industrial organization.⁵²

77. Although I agree with the observation that hedonic models are commonly used in econometric analysis, every use of hedonic regression requires variation in the data based upon price, not volume. The only variation in the satellite data, and practically the only variation in the cable data, is ultimately based on volume, and not price. I have not seen an articulation of the theory in this royalty context or any other that can derive a measure of marginal value based solely on variation in volume. At most, variation in volume at a fixed price might say something about the level of demand at that price with some assumptions about supply at that price. But without some meaningful variation in price that is reasonably related to the minutes of programming, we can say nothing about the slope of the demand curve, much less where it intersects with the supply curve.

ii. Required Assumption: The Number of Minutes of Satellite Distant Program Signals Are a Reliable Proxy for Program Category Value

78. As described in the sections above, the effects of interest in the Waldfogel-type regression models employed in the 2010-13 Cable Proceeding are based on the parameter estimates β_k ,

⁵² See, e.g., Steven T. Berry, “Estimating Discrete-Choice Models of Product Differentiation,” *Rand Journal of Economics*, Vol. 25, No. 2, 1994, pp. 242-262.

where k denotes the programming category (devotional, sports, *etc.*). These parameters are attached to $M_{k,it}$, the number of minutes of programming type k . Thus, an important assumption required in the analysis is that the number of minutes of programming are a reliable proxy for the value of the programming type. This assumption is unlikely to be plausible, as a satellite or cable system that values a particular type of programming is not likely to be indifferent to what specific programs within that programming category are being offered.

79. Consider that a cable system operator in a particular area is likely to highly value TV station A because it carries the games of a popular sports team in a neighboring market. Assume that Station A does not carry other sports programming. That same cable system is less likely to value station B because it carries the games of sports teams in more distant markets. Assume that Station B also carries a lot of other local sports programming. In this hypothetical, the station with less sports programming (station A) has higher value because it carries the games of an important local sports team; on the other hand, station B has less value because it does not carry the games of the important local sports team, but it nevertheless carries more sports programming than station A. This hypothetical shows that one cannot simply assume that a cable or satellite system values a station based on the total number of minutes of sports programming, or any other category of programming. The systems are more likely to value a station based on the availability of particular programs that appeal to particular target markets of subscribers, without particular regard to the number of minutes in a category. I understand that accounting for such valuation determinants in a regression was not possible in the 2010-13 Cable Proceeding. Moreover, it also would not be possible in the 2010-13 Satellite Proceeding.

80. Another example that shows that the number of minutes of distant programming is unlikely to be a reliable proxy for value is given by examining differences across programming types in different parts of the country. Consider a scenario where two hours of devotional programming may be equally valuable to four hours of sports programming in a certain satellite or cable geographic market called A. Furthermore, suppose there is a market B where two hours of sports programming may be just equally valuable to four hours of devotional programming. There is no way to identify the value of the sports programming or the devotional programming in this example with a Waldfogel-type regression in the satellite proceeding. While the cable

proceedings data may include greater geographic variation, the cable modeling seen to date does not allow for the measurement of variations in demand.

81. The examples I have presented in this section provide an intuition as to why the number of minutes of the relevant programming types are not a reliable proxy for the value of those programming types. More minutes of a programming type does not necessarily translate into more valuable programming, which can depend on the programming type and the geographic area where the distant signals are broadcast. It is implausible to assume that minutes of programming are a reliable proxy for the value of the programming type. And, based on my understanding of the data, one cannot add covariates to a regression model to remedy this problem.

82. Professor Crawford has said that “Waldfoegel-type regressions do *not* measure the relative value of a programming type using *only* the number of minutes of that programming type. [...] Critically, they also measure the *average value per minute* to CSOs of each programming type.”⁵³ Professor Crawford further states that “the regression only needs to estimate the *average value per minute* of a programming category.”⁵⁴ It is not clear what Professor Crawford means by this. His Waldfoegel-type regression purports to measure “average value per minute” by relating the number of minutes of the programming type to fees paid for the subscriber group. Only if the fees paid are assumed to vary based on the value of the minutes retransmitted can one claim that the regression measures “average value per minute.”

83. I am not aware of any mechanism in the compulsory licensing system that allows fees to vary based on the number of minutes of a programming category – except in the limited sense that a system might choose how many subscribers to send the programming to. Through the use of fixed effects, Professor Crawford’s regression effectively attributes no value to programming that a system retransmits to all of its subscribers on a distant basis, because signals retransmitted on a distant basis to all subscribers in a system contribute no variation in the data. Number of minutes and number of subscribers are both measures of volume. Neither is a measure of price.

⁵³ Written Rebuttal Testimony of Gregory S. Crawford, Ph.D., Sept. 15, 2017, 2010-13 Distribution of Cable Royalty Funds (hereinafter “Crawford WRT”) at ¶¶ 74-75 (emphasis in original).

⁵⁴ Crawford WRT at ¶ 77 (emphasis in original).

iii. Required Assumption: Distant Signals Retransmitted to Fewer Subscribers Do Not Tend to Have More Local-Appeal Programming (Such as Sports Programming)

84. A final assumption that I consider necessary for reliable, unbiased results from a Waldfoegel-type regression is that the level of appeal does not vary based on geography. A violation of this assumption is tantamount to estimating a model that suffers from endogeneity, which is a violation of a classical regression assumption that the error term be orthogonal to the explanatory variables.⁵⁵ Dependence between the error term and explanatory variables results in a biased estimator, which I explain in greater detail here.

85. In the context of the 2010-13 Cable Proceeding, the broad retransmission of certain stations (such as WGNA, as a clear example) would be expected to bias the coefficients downward for program types that have more minutes on those stations. This bias occurs because there is a reduction in the variability in programming minutes from subscriber group to subscriber group in those programming types. In satellite, the effect is the opposite.⁵⁶ The broad satellite retransmission of certain stations (like WGNA) is expected to bias the coefficients upward for program types that have more programming minutes on those stations. In the satellite case, the variability is station to station, rather than from subscriber group to subscriber group in cable.

86. In terms of the econometrics, the variation in minutes of programming for the different programming types, which are the explanatory variables in the regression, is not determining or causing the variation in the total royalty fees (or as I describe above, the number of subscribers), which is the dependent variable. One would expect that distant signals retransmitted to more subscribers or subscriber groups will tend to have more programming (such as devotional programming) that is focused on market segments that span across particular geographical areas, and less programming (like sports, news, and weather) that tends to be predominantly of more interest within the particular geographical areas where the programming originates, whereas distant signals retransmitted to fewer subscribers or subscriber groups will tend in the opposite direction.

⁵⁵ See, e.g., Pindyck and Rubinfeld (1998), pp. 85-86. See also Jeffrey M. Wooldridge, *Econometric Analysis of Cross Section and Panel Data*, Second Edition, 2010, pp. 53-55.

⁵⁶ Erdem WDT at Ex. 4 (showing correlation between program category minutes and distant satellite subscribers).

87. Indeed, the evidence bears this out. The total number of subscribers receiving a station on a distant basis by satellite is positively correlated with minutes of devotional and program suppliers programming, and is either negatively correlated or uncorrelated with minutes of sports and commercial television programming.⁵⁷ This relationship does not suggest that any type of programming is more or less valuable than another type. However, it might suggest that retransmission of stations with programming of more local geographic appeal tend to be retransmitted only in limited geographical areas, and stations with programming that is of appeal to market segments that span many geographical areas tend to be retransmitted more widely. This relationship is expected to bias coefficients for devotional and program suppliers programming upwards in the satellite context (where price per signal is measured based on total number of system subscribers receiving the signal in all geographical areas), and downward in the cable context (where signals retransmitted on a distant basis to a large number of subscriber groups will tend to contribute less to the variation among subscriber groups that is observed by the regression).

88. If the variation in the minutes of programming is not exogenous, then one must estimate a relationship using instrumental variables regression with instruments for the endogenous minutes of programming type explanatory variables.⁵⁸ The instruments are additional variables that serve to clean the undesirable endogeneity from the explanatory variables—in this case, the minutes of programming. One instrument is required for each of the endogenous explanatory variables. It is critical that each instrument meet two conditions: (i) that it be correlated with the endogenous explanatory variable, and (ii) that it not be correlated with the error term in the regression model.

89. To see how the instrumental variables approach solves the endogeneity problem described above, consider a simple univariate regression model of the logarithm of total royalty fees on the (endogenous) minutes of devotional programming. Suppose an instrumental variable is available

⁵⁷ Erdem WDT, ¶ 32. Indeed, Dr. Crawford himself was a co-author of a study that showed that viewer demand for sports programming of a particular team degrades rapidly over distance from the team's home town. See Gregory S. Crawford *et al.*, "The Welfare Effects of Vertical Integration in Multichannel Television Markets," *Econometrica*, Vol. 86, No. 3, 2018, pp. 891-954. This is an example of precisely the kind of geographical effect that will tend to bias results upward for sports in the cable context and downward in the satellite context, due to characteristics of the data.

⁵⁸ See, *e.g.*, Pindyck and Rubinfeld (1998), pp. 182-184. See also Wooldridge (2010), pp. 89-100.

that is correlated with the minutes of devotional programming but not correlated with the error term of the model. In a two stage least squares approach, one regresses the (endogenous) minutes of devotional programming variable on the (exogenous) instrument to obtain the predicted minutes of devotional programming in the first stage of the analysis. The predicted minutes variable is no longer endogenous because the exogenous instrument that was correlated with the original minutes of devotional programming has isolated and removed the endogenous variation from it; only the desirable exogenous variation remains in the predicted minutes of devotional programming variable. In the second stage of the analysis, the logarithm of total royalty fees is regressed on the now exogenous predicted minutes of devotional programming to obtain a consistent estimator of the marginal effect of interest.⁵⁹

90. In other words, the fact that the variation in the explanatory variable is not independent of the variation in the error term of the regression creates bias in the regression estimator. To fix this bias, one must “clean” this endogeneity by using another variable that is independent of the variation in the error term, but correlated with the explanatory variable. This is the only way to allow for a consistent estimator by removing the unwanted (endogenous) variation and keeping the desirable (exogenous) variation in the explanatory variable.

91. In practice, it is difficult to find one suitable instrument let alone several that may be required, such as one for each of the programming type minutes explanatory variables in the model. As described above, each instrument must be correlated with the minutes of programming and uncorrelated with the error term in the Waldfoegel-type regression specification. Thus, should there be a need to implement such a regression specification in the current proceeding, the burden is on the expert to justify why distant signals broadcasted to more subscribers do not tend to be signals that have more broad-appeal programming, which creates the endogeneity problem and the bias, or the burden is on the expert to find suitable instruments to implement an instrumental variables estimator.

⁵⁹ Consistency refers to the statistical property that the estimator approaches the true population parameter as the sample size becomes sufficiently large.

D. The Estimated Precision of the Coefficient Estimates May Not Be Reliable

92. It is typical in panel data settings to estimate “clustered” standard errors. For example, Professor Crawford clustered standard errors in the 2010-13 Cable Proceeding at the cable system-accounting period level.⁶⁰ However, one must consider the effect of decisions about the level of panel clustering on the estimated standard errors. When defining the groupings to cluster, if one groups too finely, there is a possibility that there will be correlation among the groups that can result in a potential risk that the standard errors could be too small, which in turn will result in deceptive (inflated) t-statistics and thus a higher likelihood of statistical significance.⁶¹

93. In describing his use of clustered standard errors, Professor Crawford notes that “the econometric estimation allows for an unrestricted correlation between the error term in the regression equation across all subscriber groups within a given system in a given accounting period. This could be important if there are shocks that are common to all subscriber groups within a system and time period.”⁶² But there is problem with Professor Crawford’s specification (in addition to the lack of an articulated theory as to how it is expected to measure value). Both a channel’s program lineup and a system’s channel lineup tend to be relatively stable over time, and there has been testimony noting that systems try not to drop channels that they have carried in the past.⁶³

94. Thus, accounting periods are not independent and so there is an expectation that the error terms are not independent across Professor Crawford’s system-accounting period clusters. In this case, clustering should have been done at the system level, not the system-accounting period level. That is, errors are expected to correlate across all observations of a system, not just observations of a system within an accounting period. For this reason, standard errors may be

⁶⁰ Crawford WDT, ¶ 136.

⁶¹ See, e.g., A. Colin Cameron and Douglas L. Miller, “A Practitioner’s Guide to Cluster-Robust Inference,” *The Journal of Human Resources*, Vol. 50, No. 2, 2015, pp. 317-372. See also Marianne Bertrand, Esther Duflo, and Sendhil Mullainathan, “How Much Should We Trust Differences-in-Differences Estimates?” *The Quarterly Journal of Economics*, 2004, pp. 249-275.

⁶² Crawford WDT, ¶ 136, n.49.

⁶³ 2010-13 Cable Allocation Determination at 3567.

understated, and his results, regardless of what they show, are expected to be less precise than his standard errors may lead one to believe.

V. SATELLITE SYSTEM OPERATORS CAN BE EXPECTED TO VALUE PROGRAM CATEGORIES SIMILARLY TO CABLE SYSTEM OPERATORS

95. Cable and satellite are substitutes and are competitive constraints to each other. This competition between cable and satellite has been understood for some time and is well known to the Department of Justice and the Federal Communications Commission, where the relevant market is typically MVPD, multi-channel video programming distribution, and in the industrial organization literature.⁶⁴ For instance, Professors Goolsbee and Petrin analyzed 30,000 households in over 300 markets and determined strong competitive interaction between cable and satellite—finding that without satellite entry, cable prices would have been 15% higher and cable quality would have been lower.⁶⁵ In his research, Professor Crawford has found that “satellite and telco competition has largely replaced price regulation as the constraining force on cable pricing and driving force for innovative services, a welcome outcome given the empirical record on regulation’s effects in cable markets.”⁶⁶ More recently, Professor Crawford and coauthors have also noted that “without the competitive pressure from satellite companies, cable TV monopolists would instead engage in quality degradation.”⁶⁷

96. It is clear that cable and satellite are substitutes and compete for subscribers in all but the most rural geographical areas. As the research in this area suggests, cable and satellite impose

⁶⁴ The FCC’s 18th Video Competition Report, released January 17, 2017, points out that the video services market is characterized by competition among, cable, satellite, and other providers of video subscription services, including online video services. See In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Eighteenth Report, Before the Federal Communications Commission, MB Docket No. 16-247, ¶ 21. Also, in their 2007 article describing the proposed merger of EchoStar and DirecTV, two satellite companies, Richard Gilbert and James Ratliff point out that the parties did not dispute an MVPD market definition. See Richard Gilbert and James Ratliff, “Sky Wars: The Attempted Merger of EchoStar and DirecTV,” in Kwoka and White (eds.), *The Antitrust Revolution*, 5th Edition, 2009.

⁶⁵ Austan Goolsbee and Amil Petrin, “The Consumer Gains from Direct Broadcast Satellites and the Competition with Cable TV,” *Econometrica*, Vol. 72, No. 2, 2004, pp. 351-381.

⁶⁶ Gregory Crawford, “Cable Regulation in the Internet Era,” chapter in *Economic Regulation and Its Reform: What Have We Learned?* National Bureau of Economic Research, 2014, pp. 137-193.

⁶⁷ Gregory S. Crawford, Oleksandr Shcherbakov, and Matthew Shum, “Quality Overprovision in Cable Television Markets,” working paper, September 17, 2018.

pricing constraints and additionally can affect quality decisions. Therefore, I expect cable and satellite to value programming with some degree of similarity. For this reason, the surveys relied on the 2010-13 Cable Proceeding can provide useful guidance for determining the relative value of the different programming types in the 2010-13 Satellite Proceeding.

97. However, one must exercise care in adapting the cable surveys for use in the current satellite proceeding. One would need to take into account relevant differences. First, one ought to consider differences in the law governing cable and satellite retransmission, and that public TV programming is generally not a part of the satellite distant retransmission regime. Also, due to comparatively low demand outside of local markets, combined with higher marginal costs for satellite retransmissions, there are no Canadian stations, and therefore no Canadian programming distantly retransmitted by satellite (this is consistent with survey results showing very low demand for Canadian programming). Some areas within many markets—typically in more rural areas—are unserved by cable systems and therefore market penetration by satellite providers is necessarily expected to be higher in these more rural areas, which may influence demand for program categories with demand that tends to vary by geography, particularly as between urban and rural interests. Finally, network programming is compensable in satellite, but not in cable, so the survey results excluded network programming; network programming is predominantly Program Suppliers, but also includes some Sports and Devotional programming.

98. In the end, based on the econometric analyses put forth in past proceedings, I find that relying on the surveys conducted for the 2010-13 Cable Proceeding could potentially be a more reliable and direct way of getting at the core question of how best to ascertain the relative marketplace value of the different programming types in both the cable and satellite proceedings. As I explain above, however, there is some care that will need to be taken in applying the results of the surveys to satellite.

VI. CONCLUSIONS

99. My analysis in this report has focused on the shortcomings of a Waldfoegel-type regression model for identifying and estimating the marginal value of programming types. The data available in the current 2010-2013 Satellite proceeding presents a number of problems for estimating a reliable econometric model, including that the royalty rates are set by regulation and

are not based on marketplace valuations. Importantly, the fact that royalty rates do not vary and are set by regulation means that a true hedonic model is unworkable. Thus, there is a question as to what the economic theory is that can generate the Waldfogel-type specification and when it can provide informative results. I have not seen a convincing, cohesive theory put forth in the cable proceeding.

100. Thus, it is difficult to see how a Waldfogel-type specification is reliable. There is no cohesive theory put forth that suggests the Waldfogel-type specification addresses the negative correlation between program type valuations. There is no cohesive theory put forth explaining why a regression with a dependent variable that is tantamount to the number of subscribers is informative given it does not even appear to be a reduced-form specification derived from an economic structural model. Moreover, it is difficult to determine whether the panel variation in satellite (based on stations) or the panel variation in cable (based on subscriber groups) is more suitable for identifying the effects of interest because, again, no cohesive theory has been posited that can guide the analysis and interpretation of the model.

101. I also have considered additional assumptions that are required, but unlikely to hold or be justifiable in this matter, including that the number of minutes of satellite distant program signals be a reliable proxy for the program type value, that royalty rates determined by regulation be related to a distant signal's programming, and that distant signals retransmitted to fewer subscribers do not tend to have more local-appeal programming, as this would result in a biased estimator. I also consider a potential concern with clustered standard error estimators, which are likely to overstate the precision of results obtained.

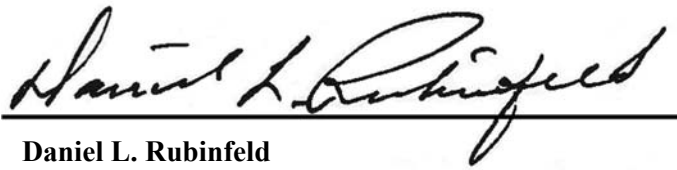
102. My view is that it would be very difficult for one to rely on a Waldfogel-type regression analysis to obtain reliable estimates of the marginal value of programming types. Although it is possible that some regression could provide some confirmatory or corroborative evidence to a different analytical framework that may be more suited to answer questions of valuation in this matter, such as a survey approach, I have not seen a regression that appears to be properly specified to do so.

103. Because cable and satellite compete and are in the same relevant product market, I expect cable and satellite to value programming with some similarity, and thus the surveys relied on the

Public Version

2010-13 Cable Proceeding can provide useful guidance for determining the relative value of the different programming types in the 2010-13 Satellite Proceeding. However, one must exercise care in adapting the cable surveys for use in the current proceeding by considering some of the differences between cable and satellite.

I hereby declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

A handwritten signature in black ink, reading "Daniel L. Rubinfeld", is written over a solid horizontal line.

Daniel L. Rubinfeld
March 22, 2019

Exhibit 1

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Curriculum Vitae

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Editorial Board, Public Finance Quarterly, 1980-2003
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Editorial Board, Evaluation Review, 1985-1987
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Concurrence, 2015: Antitrust Writing Awards: Dominance Category (with Jim Ratliff)
Editorial Board, Asia-Pacific Journal of Regional Science, 2016-2021
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Exhibit 1

Best Antitrust and Platform Markets Article (with Michal Gal)

PUBLICATIONS:

Books

1. STATISTICAL ANALYSIS OF ECONOMIC AND FINANCIAL DATA, Dynamics Associates, Cambridge, 1971, Revised Edition, 1974.
2. ECONOMETRIC MODELS AND ECONOMIC FORECASTS (with Robert S. Pindyck), McGraw-Hill, January 1976. Second Edition, 1981, Spanish, Japanese, and Chinese versions available; Third Edition, 1990; Fourth Edition, 1998.
3. ESSAYS ON THE LAW AND ECONOMICS OF LOCAL GOVERNMENTS (Editor), COUPE Papers on Public Economics, Urban Institute, December 1979.
4. AMERICAN DOMESTIC PRIORITIES: AN ECONOMIC APPRAISAL (Co-editor with John M. Quigley), University of California Press, 1985.
5. MICROECONOMICS (with Robert S. Pindyck), MacMillan, 1989, Second Edition, 1992, Italian, Spanish, and Russian editions, Third Edition, 1995, Portuguese edition; Fourth edition, 1998, Japanese, Chinese editions; Fifth Edition, 2000, Uzbek, Indonesian, German, Korean editions, Sixth Edition, 2005, Seventh Edition, 2009, Croatian, French, Taiwanese, and Basque editions, Eighth Edition, 2013, Ninth Edition, 2017.
6. DID MICROSOFT HARM CONSUMERS: TWO OPPOSING VIEWS (with David S. Evans, Franklin M. Fisher, and Richard L. Schmalensee), AEI-Brookings Joint Center for Regulatory Studies, 2000.
7. ECONOMETRICS: LEGAL, PRACTICAL, AND TECHNICAL ISSUES (Co-editor with John Harkrider), ABA Antitrust Section, 2005.

Journal Articles

1. "Credit Ratings and the Market for General Obligation Municipal Bonds," National Tax Journal, March 1973, pp. 17-27.
2. "The Determination of Equalized Valuation: A Massachusetts Case Study," Public Finance Quarterly, April 1975, pp. 153-161.
3. "Voting in a Local School Election: A Micro Analysis," Review of Economics and Statistics, February 1977, pp. 30-42.
4. "Suburban Employment and Zoning: A General Equilibrium Analysis," Journal of Regional Science, March 1978, pp. 33-44.
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Exhibit 2

Daniel L. Rubinfeld - Deposition and Trial Experience

In Re Niaspan Antitrust Litigation, Direct Purchaser Actions, 2018, Deposition (Federal District Court, Eastern District of Pennsylvania)

Yumul, Capra, Noel and others v. Indus Investments Inc., Royal Lush, LLC, and others, 2018, Trial testimony as court-appointed expert (Superior Court of California, County of Los Angeles)

In Re: Blue Cross Blue Shield Antitrust Litigation, 2017, Deposition (Federal District Court, Northern District of Alabama, Southern Division)

San Francisco Print Media Company v. Hearst et. al., 2017, Deposition (Superior Court of the State of California, County of San Francisco)

In Re AndroGel Antitrust Litigation, 2017, 2012 Depositions (Federal District Court, Northern District of Georgia)

Adriana M. Castro, et al. v. Sanofi Pasteur Inc., 2016, Deposition (Federal District Court, District of New Jersey)

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In Re: Skelaxin (Metaxalone) Antitrust Litigation, 2014, Deposition, Trial Testimony (Federal District Court, Eastern District of Tennessee)

In Re: NCAA Student-Athlete Name and Likeness Licensing Litigation, 2013, Two Depositions, 2014, Trial Testimony (Federal District Court, Northern District of California)

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Daniel L. Rubinfeld - Deposition and Trial Experience

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Broadcom v. Emulex, 2011, Deposition (Federal District Court, Central District of California)

Sunbeam Television Corp. v. Nielsen Media Research, Inc., 2010, Deposition (Federal District Court, Southern District of Florida)

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In the Matter of the Appeal of BP Pipelines (Alaska) Inc.; ConocoPhillips Transportation Alaska, Inc.; ExxonMobil Pipeline Company; Koch Alaska Pipeline Company, LLC; and Unocal Pipeline Company as owners, and Alyeska Pipeline Company, LLC, as agent of the pipeline owners, from Alaska Department of Revenue, Decision No. 05-56-17 dated April 3, 2006 and Alaska Department of Revenue Notice of Assessment of Oil and Gas Related Property dated March 1, 2006, 2009, Deposition (State Assessment Review Board of the State of Alaska)

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State of California v. Abbott Laboratories, Inc., et al., 2009, Deposition (Federal District Court, District of Massachusetts)

Exhibit 2
Daniel L. Rubinfeld - Deposition and Trial Experience

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Cason-Merenda v. Detroit Medical Center, et al. 2009, Deposition (Federal District Court, Eastern District of Michigan)

Rambus, Inc. v. Micron, Inc. et al., 2009, Deposition (Superior Court of California, County of San Francisco)

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Omax, Inc. v. Flow International, Inc., 2007, Deposition (Federal District Court, Western District of Washington)

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Fresenius Medical Care v. Baxter, 2006, 2007, Deposition, Trial (Federal District Court, Northern District of California, on two separate occasions)

Rodriguez et al. v. Kaplan, BAR/BRI, 2006, Deposition (Federal District Court, Southern District of California)

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Daniel L. Rubinfeld - Deposition and Trial Experience

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Daniel L. Rubinfeld - Deposition and Trial Experience

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Dart v. Franchise Tax Board of California, 1993, Deposition (Attorney General's Office, State of California)

Anderson, et al. v. Texaco Refining & Marketing Inc., et al., 1993, Deposition. Trial Testimony (Superior Court of California, County of San Diego)

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Daniel L. Rubinfeld - Deposition and Trial Experience

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Modine v. Allen, 1988, Trial Testimony (Federal District Court, Northern District of California)

MarkAir, Inc./MarkAir Pilots Association, In the Matter of the Termination of Gerald G. Chisum, 1988, Testimony at Arbitration Hearing (Anchorage Alaska).

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Serrano v. Priest, 1982, Deposition, Trial Testimony (Superior Court of California, County of Los Angeles)

Exhibit 3
Daniel L. Rubinfeld - Materials Considered

A. Legal

- Final Determination of Royalty Allocation, In re Distribution of Cable Royalty Funds, Copyright Royalty Judges, Consolidated Proceeding No. 14-CRB-0010-CD (2010-13), Federal Register, Vol. 84, No. 29, February 12, 2019.
- Settling Devotional Claimants' Proposed Findings of Fact and Conclusions of Law, April 5, 2018 (public version, filed April 16, 2018), In re Distribution of Cable Royalty Funds, Before the Copyright Royalty Judges, Consolidated Docket No. 14-CRB-0010-CD (2010-13).
- Final Distribution Determination, In re Distribution of 1998 and 1999 Cable Royalty Funds, Copyright Royalty Judges, Docket No. 2008-1 CRB CD 98-99 (Phase II), Federal Register, Vol. 80, No. 49, March 13, 2015.

B. Written Testimony and Statements

- Testimony of Gregory S. Crawford, Ph.D., December 22, 2016 (Corrected April 11, 2017), In the Matter of Distribution of Cable Royalty Funds, Consolidated Proceeding No. 14-CRB-0010-CD (2010-13)
- Rebuttal Testimony of Gregory S. Crawford, Ph.D., September 15, 2017, In the Matter of Distribution of Cable Royalty Funds, Consolidated Proceeding No. 14-CRB-0010-CD (2010-13)
- Written Direct Testimony of Dr. Mark A. Israel, December 22, 2016, In re Distribution of Cable Royalty Funds, Docket No. 14-CRB-0010-CD (2010-13)
- Written Rebuttal Testimony of Dr. Mark A. Israel, September 15, 2017 (Amended February 12, 2018), In re Distribution of Cable Royalty Funds, Docket No. 14-CRB-0010-CD (2010-13)
- Written Corrected Direct Statement of Lisa M. George, May 17, 2017, 2010-2013 Cable Royalty Distribution Proceeding, Docket No. 14-CRB-0010-CD (2010-2013)
- Corrected Amendment to the Written Direct Statement of Lisa M. George, May 17, 2017, 2010-2013 Cable Royalty Distribution Proceeding, Docket No. 14-CRB-0010-CD (2010-2013)
- Written [Rebuttal] Testimony of Lisa M. George, September 11, 2017, 2010-2013 Cable Royalty Distribution Proceeding, Docket No. 14-CRB-0010-CD (2010-2013)
- Testimony of Erkan Erdem, Ph.D., March 9, 2017, In the Matter of Distribution of the 2010-2013 Cable Royalty Funds, Consolidated Proceeding No. 14-CRB-0010-CD (2010-2013)

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Daniel L. Rubinfeld - Materials Considered

- Rebuttal Testimony of Erkan Erdem, Ph.D., September 15, 2017, In re Distribution of Cable Royalty Funds, Consolidated Proceeding No. 14-CRB-0010-CD (2010-13)
- Declaration of Erkan Erdem, Ph.D., Supplementing Written Rebuttal Statement Allocation of Settling Devotional Claimants, October 11, 2017, In re Distribution of Cable Royalty Funds, Consolidated Proceeding No. 14-CRB-0010-CD (2010-13)
- Written Direct Testimony of Erkan Erdem, Ph.D., In Re Distribution of Satellite Royalty Funds, Consolidated Proceeding No. 14-CRB-0011-SD (2010-13), March 22, 2019.
- Testimony of Dr. William J. Brown, In re Distribution of Cable Royalty Funds, Consolidated Proceeding No. 14-CRB-0010-CD (2010-13)

C. Publications

- ABA Antitrust Section's initial edited volume, *Econometrics: Legal, Practical, and Technical Issues*, First Edition.
- Steven T. Berry, "Estimating Discrete-Choice Models of Product Differentiation," *Rand Journal of Economics*, Vol. 25, No. 2, 1994, pp. 242-262.
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Daniel L. Rubinfeld - Materials Considered

- Zvi Griliches, “Hedonic Price Indexes for Automobiles: An Econometric Analysis of Quality Change,” National Bureau of Economic Research, The Price Statistics of the Federal Government, 1961, pp. 173-196.
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- Daniel L. Rubinfeld, “Econometrics in the Courtroom,” *Columbia Law Review*, Vol. 85, No. 5, 1985, pp. 1048-1097.
- Jeffrey M. Wooldridge, *Introductory Econometrics: A Modern Approach*, Fifth Edition, 2013.
- Jeffrey M. Wooldridge, *Econometric Analysis of Cross Section and Panel Data*, Second Edition, 2010, pp. 53-55.

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Daniel L. Rubinfeld - Materials Considered

D. Data

- Satellite royalty fees data (2010-2013) compiled by KPMG.

E. Other

- In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Eighteenth Report, Before the Federal Communications Commission, MB Docket No. 16-247.

Proof of Delivery

I hereby certify that on Friday, March 22, 2019 I provided a true and correct copy of the (PUBLIC) Written Direct Statement of the Settling Devotional Claimants - Volume I to the following:

Settling Devotional Claimants, represented by Jeannette M. Carmadella served via Email

American Society of Composers, Authors and Publishers (ASCAP) and Broadcast Music, Inc. (BMI), represented by Joseph DiMona served via Electronic Service at jdimona@bmi.com

Spanish Language Producers (SLP), represented by Brian Boydston served via Email

MPAA-represented Program Suppliers, represented by Gregory O Olaniran served via Electronic Service at goo@msk.com

Spanish Language Producers, represented by Brian D Boydston served via Electronic Service at brianb@ix.netcom.com

SESAC, Inc., represented by John C. Beiter served via Electronic Service at jbeiter@lsglegal.com

Multigroup Claimants, represented by Brian D Boydston served via Electronic Service at brianb@ix.netcom.com

Broadcast Music, Inc., represented by Janet Fries served via Email

National Public Radio, Inc. (NPR) (submitted comment), represented by Gregory A Lewis served via Electronic Service at glewis@npr.org

Motion Picture Association of America (MPAA)-Represented Program Suppliers, represented by Alesha M. Dominique served via Email

Broadcast Music, Inc. (BMI), represented by Jennifer T. Criss served via Electronic Service at jennifer.criss@dbr.com

Major League Soccer, LLC, represented by Edward S. Hammerman served via Electronic Service at ted@copyrightroyalties.com

Joint Sports Claimants (JSC), represented by Robert Garrett served via Email

Joint Sports Claimants, represented by Michael E Kientzle served via Electronic Service at michael.kientzle@apks.com

American Society of Composers, Authors and Publishers, represented by Samuel Mosenkis served via Email

American Society of Composers, Authors and Publishers (ASCAP), represented by Sam Mosenkis served via Electronic Service at smosenkis@yahoo.com

Broadcaster Claimants Group, represented by John Stewart served via Electronic Service at jstewart@crowell.com

Signed: /s/ Matthew J MacLean